FINANCIAL TIMES

EUROPE'S BUSINESS NEWSPAPER

No. 29,435 Monday October 1 1984 50929 D 8523 B

GM learns a lesson from Japan, Page 19

NEWS SUMMARY

GENERAL

Gromyko, Reagan talks 'positive'

Senior members of the Reagan Administration claimed that last week's series of exchanges with Mr Andrei Gromyko, the Soviet Foreign Minister, had set the scene for a new and more constructive dialogue between the U.S. and the Soviet Union.

They stressed that the exact timing and the nature of further contacts with Moscow remained to be seen and that the onus was now on the Soviet Union.

Mr Walter Mondale, the Democratic presidential challenger, immediately sought to turn the lack of concrete achievements into an electoral issue. Page 20

Dissidents' request

Six South African dissidents hiding from police inside the British Consulate in Durban have asked the West German, Dutch, French and U.S. embassies for sanctuary because they feared Britain would expel them from its mission.

Temple withdrawal

Indian army withdrew from the Golden Temple in Amritsar and the Sikh Akali party called off its agitation in the holy city.

Warning base

Greece will become a base for Nato Early Warning Aircraft (Awacs) by the end of 1985 to detect foreign air movements along the south-east borders of the alliance. Page 3

Egyptian trial

Sixteen men were sentenced to hard labour for life, 91 drew jail terms and 174 were acquitted in a mass trial in Cairo of 302 Moslem fundamentalists accused of plotting revolution in Egypt. Two of the accused died in prison and 19 are still at large.

Peruvian rebels

The Peruvian Government, under pressure from Maoist insurgents, faces a separate challenge from the new Tupac Amaru urban rebel group which claimed responsibility for a machinegun attack on the U.S. Embassy in Lima.

Arab summit plan

King Hassan of Morocco has proposed that the Arab League hold a special summit to discuss Jordan's controversial decision to re-establish full diplomatic relations with Egypt. Page 2

Price riot deaths

Three people were killed and 26 injured in the Nile delta town of Kafr El-Dawwar in protest against higher prices of bread and flour

Mafia blow

The Italian authorities believe they have dealt an unprecedented blow against the Mafia with a series of arrests of gang bosses following the decision of a Mafia leader to turn state's evidence.

Sakharov offer

A Pakistan-based Afghan resistance group said it would release Soviet prisoners in Afghanistan if Moscow released Soviet dissident Andrei Sakharov from internal exile.

China plea

Chinese Premier Zhao Ziyang urged Taiwan to move towards peaceful reunification with China on a basis similiar to Peking's pact with Britain to regain Hong Kong.

Munich shut-down

After 23 illegal immigrants were found working in the kitchen of a 6,000 seat beer tent, Munich officials ordered its closure – the first in the 174 years of the city's beer festival. The landlord had already been fined for giving short measure.

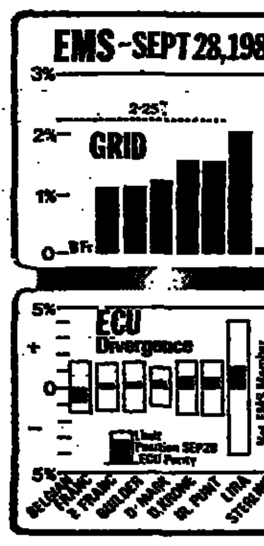
BUSINESS

Moves to speed up Brazilian ore plan

A CONSORTIUM of Japanese steel mills is expected to give the go-ahead for an acceleration in plans for the Carajas iron ore project, Brazil's most important development.

Companhia Vale do Rio Doce, the Brazilian-state mining company, will propose to a visiting senior Japanese delegation that the project be brought forward by six months to take advantage of the recovery in most industrialised nations' steel industries. Page 20

TRADING was subdued in the European Monetary System last week. Once again attention remained focused on the dollar and the West German Bundesbank's aggressive intervention to pull the dollar weaker. However the dollar's relative strength prevented the D-



from registering any significant appreciation and consequently there was no downward, pressure on the weaker members of the system. The Belgian franc remained the weakest member but was trading comfortably within its divergence limit.

The chart shows the two constraints on European Monetary System exchange rates. The upper grid, based on the weakest currency in the system, defines the cross rates from which no currency (except the lira) may move more than 2¼ per cent. The lower chart gives each currency's divergence from its "central rate" against the European Currency Unit (ECU), itself a basket of European currencies.

TOKYO: Prices closed lower for the first time in six trading sessions on Saturday, after profit-taking followed Wall Street's fall. The Nikkei Dow average lost 12.09 to 10,637.16. Prices, Page 32

HONG KONG banks cut their prime rates by a point, to 13 per cent, from this morning.

CHINA is expected to apply formally for observer status at the world trade body Gatt after the conclusion of a draft agreement on the return of Hong Kong to Chinese rule.

BRITISH companies have a rate of return on capital which is still below the levels of the 1970s, the Bank of England says. Page 8

ISRAEL Finance Ministry Director-General Nissim Baruch resigned, saying the new Government was not acting quickly or strongly enough to revive the economy. Page 2

ITALIAN Government presented its 1985 budget, aimed at holding down spending and cutting the public sector deficit. Page 2

LONHRO failed to win election of two of its directors to the House of Fraser board, but chief executive "Tiny" Rowland was re-elected to the board. Page 8

INVESTMENT TRUST, specialising in the French equivalent of Britain's Unlisted Securities Market, is being launched on the London Stock Market. Page 28

BNOC fears many companies could abandon the UK as a long-term oil supplier unless the British Government changes its attitude to North Sea oil prices. Page 8.

CGT union calls for wider disruption at Renault

BY DAVID HOUSEGO IN PARIS

RENAULT, the troubled French automobile group, faces the prospect of a damaging industrial dispute after the communist-led CGT union yesterday widened its call for strike action.

The CGT announced yesterday that it would call on all Renault employees to disrupt production more forcefully than last week and that it would support worker occupation of Renault plants.

On Friday Renault's most modern plant at Douai in northern France, where the R9 and R11 are built, was virtually paralysed. Production was also disrupted at Cléon, which manufactures motors for the group – including the new Renault Superfive – and Sandouville in western France. Stoppages have occurred at several other Renault plants over the past few weeks.

The dispute is over the size of the end-of-year bonus for 1984 and over the management's proposal that workers take their fifth week's paid holiday during the Christmas period.

Behind these specific grievances lie labour worries over the 15,000 cutback in the workforce that Renault is expected to announce soon and a potential confrontation over wage claims for next year. Wage negotiations are due to start on Thursday against a background of dissatisfaction that the group has only paid out an additional 2 per cent increase so far this year.

The threat of a widening conflict comes at the end of the worst time for Renault in that the group has only just launched the Superfive on which it is counting to regain its flagging market share in Europe. The new model will be given extensive publicity at the Paris Motor Show, which opens this week. Strike action could also deepen Renault's losses which are already expected this year to exceed FFr 5bn ($541.7m).

The escalation of the conflict by the CGT over the weekend came as a surprise to the company and the Government. Officials were saying at the end of last week that they did not believe that the Communists wanted a serious industrial clash with the Government at this stage.

However, statements yesterday by M Jean-Louis Fournier, a CGT leader at Renault, left no doubt that the union is preparing to intensify the dispute. He accused the Government and the management of being in league to cut workers' purchasing power and to make thousands redundant.

He called for Renault to extend the costly concessions it made at its Le Mans plant a week ago to the rest of the group. At Le Mans, where transmission systems are made for the new Superfive, the management conceded a FFr 300 bonus, flexibility over the fifth week's paid holiday and no forced redundancies.

The management is reluctant about further negotiations before it sees union leaders in a series of meetings beginning on Tuesday and before the salary negotiations open on Thursday.

Reflecting the tougher communist attitude, Mr André Sainjon, the leader of the CGT metalworkers federation spoke recently of "deep and strong" discontent at Renault. A CGT leader in the communist daily L'Humanité said that what was gaining ground at Renault was a rejection of the Government's austerity measures as being applied in the group.

PUBLIC SECTOR SPENDING PLAN

Brazil makes progress on IMF demands

BY ANDREW WHITLEY IN RIO DE JANEIRO

THE BRAZILIAN Government has delivered a highly positive economic progress report in a sixth Letter of Intent to the International Monetary Fund (IMF), tempered only by news of a worrying rise in the country's public sector deficit target.

The letter, which was given to the IMF on Friday and published over the weekend, reports that the expected surplus on the current account of the balance of payments this year has been revised upwards to $5.1bn, compared with a $4.3bn forecast in the last IMF letter, submitted in March. The new letter notes that in the first half of 1984 Brazil's net international reserves increased by $4.2bn, practically the target for the whole year.

Midway through the three-year adjustment programme that Brazil agreed to adopt when it accepted a $4.2bn Extended Fund Facility loan from the IMF, the Government stresses that much progress has also been made towards meeting IMF policy requirements for the domestic economy, but admits to a failure to control inflation.

This is ascribed to a combination of factors: the impact of indexation within the Brazilian economy and a larger than expected inflow of foreign currency as a direct result of the country's strong export performance.

In consequence, the global public sector deficit target for the year has had to be altered from a first estimate of a range of 11 to 13 per cent of gross domestic product (GDP) to a worryingly high 17.8 of GDP. A further tightening of public sector spending is promised.

Public sector indebtedness, the letter says, will no longer decline in 1984 as it had hoped by five percentage points. Instead the Government, with the IMF's technicians, has pitched for a much more modest decrease.

In dollar terms Brazil's public sector debt actually grew by $9bn in the six month-interval between the last two Letters of Intent, the accompanying technical memorandum shows.

The published letter confirms the information leaked when the agreement was originally drawn up last month, that the key money supply and monetary base growth targets for 1984 have been raised from the original 50 per cent ceiling to a maximum of 95 per cent.

Buried in the latest pact with the IMF are also a number of specific promises, implementing earlier general commitments, which should gratify the country's foreign trading partners. These include a commitment to eliminate all import finance taxes by the end of 1985 as well as an all-round reduction in import surcharges.

Brazilians travelling abroad will benefit from the easier foreign exchange position with a promised relaxation by the end of the year of hard currency purchase limits.

Statistical Trends, Page 6

Argentina to repay banks $100m

By Margaret Hughes in London

THE ARGENTINE Government will repay on schedule today the $100m advanced by its leading creditor banks last March as part of a $500m temporary rescue.

The payment follows agreement in the early hours of Saturday with Argentina's 11-bank advisory group and the transfer to creditor banks on Friday of $100m on overdue interest payments on the country's $43.6bn foreign debt. As a result, Argentina has now paid all interest due up to April 24.

Creditor banks will now be able to include this latest interest payment in their third-quarter earnings, although because Buenos Aires is still so far in arrears, they may still have to classify their Argentine loans as "sub-standard" – a classification that falls short of writing them off.

In return for agreement on the interest payments, the bank advisory group has "endorsed" Argentina's request to defer again, this time until January 15, repayment of the $750m principal payment on the $1.1bn bridging loan signed in December 1982.

That will have to be approved by the 350 creditor banks that have been rolling over the principal on a daily basis since September 15, when it was last due for payment.

Argentina and the bank advisory group have agreed to begin talks this month on the country's future external financing needs. Sr Bernardo Grinspun, the Argentine Economy Minister, said last week in Washington that, after the agreement reached with the Internation-

Continued on Page 20

Editorial comment, Page 18

Import changes may disrupt Nigeria's trade

BY CHRISTIAN TYLER, WORLD TRADE EDITOR, IN LONDON

TRADE with Nigeria could be severely disrupted from this week because of a change of import inspection arrangements.

It was confirmed yesterday that Nigeria's military Government has refused to renew an exclusive six-year-old contract with the Swiss inspection company SGS.

The contract expired yesterday, but no guidelines have yet been issued to Nigeria's suppliers worldwide about the changeover to new agents. Importers and exporters alike were said in Lagos yesterday to be "in a state of shock and dismay."

Companies in Europe, and especially in Britain, which exported goods worth about £800m ($990m) to Nigeria in 1983, were anxiously awaiting clarification of the decision, and were uncertain whether goods already cleared by SGS and shipped would be accepted and paid for when they arrived.

They were also not sure whether transitional arrangements would be introduced to ensure smooth completion of export and import formalities during the handover to the new agents. They expressed doubts over their ability to assume immediate responsibility for pre-shipment inspection.

Failure to arrange a smooth transition could cause extensive delays in delivering essential imports, leaving Nigerian industry, which is already operating well below capacity, starved of urgently needed raw materials and spares.

Prolonged delays, say exporters, could jeopardise the validity of existing import licensing documents, which can take months to procure.

No reason has been given for the ending of the SGS contract, although it is thought that the company, which has an international reputation, has fallen foul of internal politics.

Nigerian ministers met on Thursday and interim arrangements were apparently discussed. There were hopes last night that some announcement might be made today.

Unless SGS is given an extension in order to prevent further confusion, its work will today be divided among five different companies.

Exports from the U.S. and Asia will be handled by Cotecma, of Geneva, Daniel, C. Griffith of the UK and OMIC (Overseas Merchandise Inspection Company) of Tokyo. Continental Europe and Africa will be handled by Bureau Veritas/Thionville, of France, and North and South America by Swede Control/Intertek Services of Sweden.

SGS was appointed by the previous military Government in 1978 in an effort to stop suppliers overcharging and to end schemes in which false invoicing and cargo-switching were used to get money out of the country.

John Wicks writes from Zurich: In Switzerland an SGS spokesman said yesterday: "So far we have received no instructions from the Nigerian Government as to transitional arrangements."

It seems that the losses of the Nigerian contract will have no really serious effect on the SGS concern, one of the world's leading inspection and testing companies.

UK miners set to win support at Labour conference

By John Lloyd and Peter Riddell in Blackpool

BRITISH MINERS are likely to win the overwhelming support of the opposition Labour Party today.

The party conference which opens at Blackpool is set to give the National Union of Mineworkers (NUM) solid backing for its complaints about police behaviour on picket lines during the 30-week-old national coal dispute.

Alleged violence by pickets, however, is not mentioned in an NUM resolution to be put to the conference.

This one-sidedness represents a clear rebuff for Mr Neil Kinnock, the party leader, who has condemned all violence, notably in a speech to the Trades Union Congress (TUC) a month ago. The likely outcome will eagerly be seized upon in a planned campaign of speeches and broadcasts by senior government ministers.

A crucial passage in the miner's motion condemns the Government for "repressive legislation and an unprecedented and wholesale operation involving unlawful actions by the police, organised violence against miners, their picket lines and their communities by means of an unconstitutional, nationally controlled police force."

Mr Kinnock had hoped that any reference to the police might be excluded from motions in the coal debate and be considered separately in the immediately following debate this afternoon on the police.

His office strongly suggested that this would happen after a meeting on Thursday between him and the NUM leadership. However, at a meeting late on Saturday to prepare the motion the passage on the police was included.

Mr Arthur Scargill, the NUM president, yesterday denied that he had made any "deal" with Mr Kinnock which would have moderated the attack in the motion on police violence.

The likely result is an undoubted embarrassment for Mr Kinnock, especially as the debate will be dominated by speeches from Mr Scargill and from Mr Tony Benn, on behalf of Labour's National Executive Committee.

Mr Kinnock is expected to deal with the dispute and with violence in his major conference speech tomorrow when he is likely to concentrate on attacking the Government's conduct and in expressing support for the miners' opposition to pit closures.

Leaders of Nacods, the pit super-

Continued on Page 20

EEC pledges to raise aid to Central America by 50%

BY HUGH O'SHAUGHNESSY IN SAN JOSÉ, COSTA RICA

THE EUROPEAN Community is to boost its economic aid to Central America by 50 per cent next year after a two-day meeting of 21 European and Latin American foreign ministers.

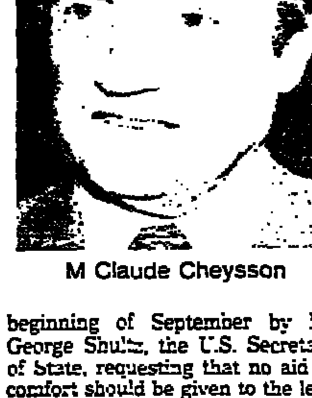
The discussions appeared to point to a much closer European involvement in the region. They ended on Saturday afternoon with a joint call for a "comprehensive agreement that would bring peace" to Central America.

Despite the economic understandings which should lead to the supply of £180m ($221m) of EEC aid in the five-year period from 1985, M Claude Cheysson, the French External Affairs Minister, said the results were "essentially political."

Speaking for France, he pledged that the Central Americans could count on special help from the European Community in international forums such as the IMF and the World Bank.

Formally, the European ministers promised to help the Central American nations with economic problems caused by high interest rates and low prices for their exports. All countries agreed on the need for better conditions for European investors in Central America.

Most European ministers refused to comment on the letter sent at the beginning of September by Mr George Shultz, the U.S. Secretary of State, requesting that no aid or comfort should be given to the left-wing Government of Nicaragua at the San José meeting.



M Claude Cheysson

The letter was, however, condemned by Father Miguel d'Escoto, as interference in his country's affairs. The majority feeling among the Community ministers as expressed by the French, appeared to be that European-Central American relations did not need to be the concern of Washington.

At the meeting it was clear that there was a difference of view between France and Britain on the question of possible future aid to Nicaragua. Sir Geoffrey Howe, the British Foreign Secretary, hinted strongly that Britain reserved the right to condition aid to the Nicaraguan Government to strict political criteria.

The French, meanwhile, although wary of some Sandinista pronouncements, are clearly more inclined to give the Nicaraguans the benefit of the doubt.

The presence in San José of the Spanish and Portuguese ministers was seen as a significant gesture of reassurance to the two Iberian countries about their eventual entry to the Community and as a token of the increasing involvement by the Community with Latin America that their entry will bring.

The expected announcement of a resumption of consular relations between Britain and Guatemala first broken off by the Guatemalans 20 years ago over the Belize question, was not made, although Spain and Guatemala announced they would resume diplomatic relations broken off four years ago after the storming of the Spanish embassy in Guatemala City by Guatemalan police.

EEC Council meeting, Page 3

CONTENTS

OVERSEAS NEWS

Italian budget aims to reduce public deficit

BY JAMES BUXTON IN ROME

THE GOVERNMENT of Sig Bettino Craxi formally presented to Parliament at the weekend its budget for 1985 which aims to hold down spending in real terms and reduce the public sector deficit.

The budget envisages spending curbs on health, education, social security and on funding state owned industry. It also embodies blocking any rise in real wages, for the government's 3m employees next year.

The chief objective of the five party coalition Government, is to bring inflation down to an average of 7 per cent next year, from its expected 1984 average of just over 10 per cent.

Gross Domestic Product is expected to rise next year by about 2.5 per cent, about the same as the expected rate of increase for this year.

According to the Government's calculations, the public sector borrowing requirement next year will be L96,400bn ($51bn). This would be only marginally up on this years' expected requirement of L95,800bn and taking into account economic growth would represent a drop in the proportion of GDP from 15.7 per cent this year to 14.3 per cent next year. These percentages are much higher than those of other major industrial countries.

Total Government spending next year is put at L358,000bn about 54 per cent of GDP and about the same in real terms as that for 1984, assuming growth forecasts are met. But although the borrowing requirement is expected to decline in real terms there will still be a substantial increase in total Government debt which is now almost as big as Italy's GDP.

The new budget, while only a very modest step towards the long-overdue reordering of Government finances, is based on what may be sanguine assumptions about the will to accept in practice a policy of restraint.

The budget assumes that Parliament will by the end of the year approve measures to bring in L16,000bn in extra revenue – by agreeing to changes in the structure of VAT and to an amnesty in return for payment for past offenders against building regulations.

The budget also assumes that Parliament will accept cuts in health spending, similar to those which it refused to accept last year.

The first of these measures was presented to Parliament in August while the building amnesty has been under Parliamentary consideration for exactly a year.

There is naturally union opposition to the proposals to keep public sector pay rises to 7 per cent – which would mean no increase in real terms even if the 7 per cent inflation target is met.

Ministers pleased by IRA arms seizure

By Our Dublin Correspondent

IRISH GOVERNMENT sources were last night delighted with the weekend capture of a trawler loaded with weapons for the Provisional IRA. Mr Michael Noonan, the Justice Minister, declared himself "very happy" with the operation, which, he said, had been extremely well planned by the security forces.

The attempted importation of about 7 tonnes of arms and ammunition is seen here as part of an intensified terrorist activity in connection with the forthcoming Anglo-Irish summit meeting between Mrs Margaret Thatcher, the UK Prime Minister, and Dr Garret FitzGerald, the Irish Prime Minister.

Irish security sources discounted the involvement of British intelligence services in the arrest of the trawler.

Three vessels from the Irish naval service, assisted by police, had kept watch off the south-west coast of Ireland for several days. Early on Saturday morning, the trawler Marita Anne was stopped after warning shots of tracer rounds were fired across its bows.

A preliminary check showed that the cargo included more than 100 rifles, among them American-made Armalite and German-made semi-automatic rifles; 30 hand guns; large quantities of hand grenades made in South Korea; rockets; submachineguns; and parts for a Browning machinegun.

Hassan seeks Arab summit on Jordan's decision over Egypt

BY TONY WALKER IN CAIRO

KING HASSAN of Morocco has proposed that the Arab League hold a special summit to discuss Jordan's controversial decision to re-establish full diplomatic relations with Egypt.

The king, in his capacity as chairman of the Arab League, is despatching envoys to regional capitals to sound out opinion on a special meeting to be convened in Morocco.

In the event that such a meeting was held, it would almost certainly develop into a full-scale discussion of Egypt's suitability to be readmitted to the Arab fold.

Meanwhile, in Kuwait at the weekend Mr Yassir Arafat, leader of the Palestine Liberation Organisation, called on Arab countries to restore relations with Egypt severed in 1979 after an Arab League summit in Baghdad decided to boycott Egypt because it signed the peace treaty with Israel.

Mr Arafat, who had several meetings with King Hussein of Jordan last week, declined to comment directly on the Jordanian decision, but his remarks in Kuwait were clearly intended to signal his support for Jordan's unilateral decision to upgrade relations with Egypt.

Mr Arafat, who is under great pressure from extremist groups within the PLO, has moved closer to the moderate Arab position on peace in the Middle East

Syria and Libya have frequently criticised Jordan for breaking ranks with its fellow Arab League members. Saudi Arabia and Kuwait have criticised Jordan, but tempered their criticism by indicating support for Egypt's return to the Arab fold.

Mr Boutros Ghali, Egypt's Minister of State for Foreign Affairs, said: "Resumption of relations (with Jordan) should open the door before the remainder of the hesitating Arab states to rid themselves of the Baghdad resolution and work for restoring relations with Egypt."

Lisbon's loan pledge

BY PETER WISE IN LISBON

PORTUGAL will not need to incur further international loans before the end of 1984 because of the encouraging results of an 18-month austerity drive, Sr Ernani Lopes, the Finance Minister, said at the weekend.

Sr Lopes, returning from meetings of the International Monetary Fund and World Bank in Washington, made clear that the Socialist-led coalition would not take advantage of its success to implement what he called irresponsible policies of economic growth.

He said that would be "a gross error that would soon demolish all our recent efforts."

Top Israeli quits over economy

TEL AVIV—A senior Israeli Finance Ministry official resigned yesterday, charging that the new government was failing to take swift, tough action to revive the economy, Reuter reports.

Mr Nissim Baruch, the ministry's Director-General for only three months, said the government had not shown the political will to implement a programme prepared by the ministry. This is apt to embarrass Mr Shimon Peres, the Prime Minister, who plans to visit Washington this month to seek emergency economic assistance.

Bill to help Tamils

SRI Lanka has prepared legislation to deal with Tamil grievances, said Mr Lalith Athulathmudali, the National Security Minister, Mervyn de Silva reports from Colombo. It would set up district councils and a second chamber, part-elected and part-nominated, with committees to monitor human rights violations and employment.

Iraq threat in Gulf

Iraq threatened yesterday to step up attacks on Iranian economic installations after two air strikes on a petrochemical complex near the front lines in the Gulf war in the past eight days, Reuter reports from Baghdad. Iraqi jets yesterday raided the uncompleted complex at Bandar Khomeini in south-west Iran.

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21st century telecommunications come to Tokyo suburb

BY ROBERT COTTRELL IN TOKYO

WHILE MOST people in many parts of the world are happy enough to find an operational public phone booth, Tokyo's Mitaka district residents (at the weekend) became the first beneficiaries of an integrated telecommunications system likely to spur profound social and economic change.

Its aim is to provide a common linkage between all types of communication equipment commonly found in homes and offices: telephones, computers, televisions, facsimile transmitters, telex machines.

Also on the space-age hook-up will be some less common devices such as the sketchphone, which transmits hand-drawn diagrams, and the television printer, with further accommodation for future devices such as the pocket-sized portable telephones which, the engineers say, will be carried by almost everyone in 30 years' time.

Electronic conversation between these devices can be on an unheard-of scale, with large computers offering database information and data-processing services. Home banking and home shopping become obvious possibilities. Equally feasible would be, say, home aircraft designing or home nuclear physics.

The Mitaka pilot project inaugurates the Information Network System (INS), the dominant long-term scheme of Nippon Telegraph and Telephone (NTT), Japan's state-owned domestic telecommunications monopoly. The plan is to go nationwide in 1995.

The elements of INS, both hardware and software, also exist in the U.S. and Europe, but Japan leads in its commitment to bundle-up the range of computers and services and make that integrated package cheaply commonplace in every home and office. The capital cost, however, will be enormous, with brokers estimating that the company may spend Y20,000bn to Y30,000bn (£66bn and £99bn) between 1980 and 2000.

The major technological breakthroughs which make INS physically possible are optical fibre cables, which can carry more—and more complex—information than conventional copper-wire cables: and very large-scale integrated circuits, which compress complicated electronic components and circuitry into small, cheap packages.

NTT is now completing a major optical fibre trunk route the length of Japan, which will be the backbone of the country's telecommunications in coming decades. (Some of NTT's shares are expected to be sold to the Japanese public next year, and its monopoly powers curtailed. Rival carriers will probably then be formed to lease NTT lines, and provide competitive services.)

OVERSEAS NEWS

Greece will be Awacs base by end of 1985

By Andriana Ierodiaconou in Athens

GREECE WILL become a base by the end of 1985 for a Nato Advance Warning Airborne Communication System (Awacs) aircraft which will be used for detection of enemy air movements along the south-eastern borders of the Alliance.

Athens had agreed to participate in a project to set up an Nato Airborne Early Warning Force (NAEWF) before the conservatives lost power to Dr Andreas Papandreou's Socialist Party in October 1981.

Alliance members were required to make special contributions to finance the project, total cost of which is estimated at more than \$2bn (£1.6bn).

The Socialists are continuing this participation, despite the fact that in the past three years they have questioned Greece's role in Nato's military wing, and actively cultivated realtions with the Soviet Union and the Balkan Warsaw Pact countries, Bulgaria and Romania.

Under the NAEWF project, 18 Awacs aircraft will be deployed across the Alliance by the end of 1985. Command Headquarters for the force are located at Supreme Headquarters Allied Powers Europe (SHAPE), in Belgium.

A main Awacs base at Kielenkirschen in West Germany has been active since 1982, with 12 aircraft at present in place. Britain is deploying its own separate force of 11 Nimrods, based at RAF Waddington.

There are three forward Awacs operating bases. The first, at Konya in southern Turkey, has been operating since late 1983. A second, at Trapani in Italy, is scheduled to come into use by the end of 1985. The Greek base will be the third.

One Awacs, a specially converted Boeing 707, with crew, will be rotated into and out of Preveza, the site of a Greek Air Force base, on the western Ionian coast of Greece.

Renovation of ground radar facilities to receive the aircraft is currently under way at Preveza.

The aircraft will be deployed to detect "enemy" air movements during Nato exercises in the region. Awacs aircraft are particularly well equipped to detect low-flying fighter jets.

Brussels bid to end budget deadlock

BY QUENTIN PEEL IN BRUSSELS

A LAST-DITCH effort by the Foreign and Finance Ministers of the European Community begins today, to break their deadlock over financing the overspent budget of the EEC, and revive the momentum of the stalled negotiations to bring both Spain and Portugal into an enlarged Community.

The Ministers face a deadline of Friday by which they are legally bound to present a budget for 1985 to the European Parliament for its approval.

They also have to agree on a supplementary budget for the rest of 1984, to prevent the European Commission from running out of cash by the end of October—money which it needs to finance committed farm spending.

At the same time, they face an ultimatum from West Germany that contributions from member-states cannot be increased in the long-term until enlargement of the EEC has been agreed and accomplished.

But without such an increase, the money will not be available to allow Britain its promised reduction in net budget contributions next year.

The latest hurdle now faced by the Council of Ministers representing the 10-member states risks turning into a confrontation with both the European Parliament and the Commission over the term of the budget package they put together, especially the means of enforcing long-term control of spending.

The source of conflict between the Council, the Commission and the Parliament is the package of budgetary discipline measures due to be finalised by the Finance Ministers at their meeting in Luxembourg today.

M. Gaston Thorn, president of the Commission, warned the Ministers in a letter on Friday that their present plan "disregards the role of Parliament" in the budget process—lending his support to a similar protest by M. Jean-Pierre Cot, chairman of the Parliament's budget committee.

What the Finance Ministers the insistence of Britain—is keep the rate of increase in EEC are seeking to do—primarily at farm spending below the rate of increase in EEC revenues.

They are also proposing to set a ceiling on non-farm spending, however, apparently stifling the right of Parliament to negotiate a different figure.

Now the Ministers will have to find some way of satisfying Parliament that its powers are not encroached on, while finding a formula for spending control which equally reassures France, Denmark, Greece and Italy that their farmers will not see their livelihood threatened.

The conclusions of the Finance Ministers will have to be passed immediately to the Foreign Ministers' meeting on Tuesday morning.

The Foreign Ministers will then have to pull together all the strings of a budget package demanded by Britain as the prerequisite for approving increased spending in 1984 and 1985.

Urgent need to drain EEC's wine lake

BY IVO DAWNAY IN BRUSSELS

TAKE A 3bn-litre wine lake, add more than Ecu 1bn (£590m) in EEC support payments, stir in three equal measures of social, budgetary and community enlargement issues.

This is the potent cocktail of problems to be served to the EEC's farm ministers at an emergency council meeting in Luxembourg today. But there is little likelihood that they will find it any more digestible than they did when they met at Killarney last week.

The community's growing wine surplus is now by far the most urgent problem on the agricultural agenda. Without a collective agreement on how to stem the tide, no clear terms on wine can be put to Spain in its negotiations to enter the EEC.

Moreover, such is the linkage between disparate issues in every Community negotiation, this could have repercussions for the EEC budget because West Germany has refused to approve an increase in the Community's resources until the terms of Spain's and Portugal's admission to the EEC are agreed.

The sources of the wine lake are simple—too much is produced and too little is drunk.

Meanwhile, the annual cost of maintaining the EEC's wine system has risen from fewer than Ecu 100m to more than Ecu 1bn in 10 years.

Output each year has increased by one percentage point annually for almost a decade, to a new high of 165m hectolitres. Consumption is now down to 145m hl a year.

In France, for example, the largest EEC wine bibber, consumption per citizen each year has dropped from an average of 130 litres in the 1960s to fewer than 85 litres today. A further 20 litre annual decline is anticipated for the next few years.

Small increases in wine drinking in the northern countries which produce little wine account for only a few buckets in the ocean of surpluses. According to one expert, half the EEC's 1.5m hectares of vines should be torn up, in order to bring demand and production into equilibrium.

This summer the EEC Commission has proposed a series of measures to tackle the problem, including:

- A new Guarantee Threshold on price support, to force compulsory distillation of wine with a reduced rate of compensation once 100m hl of Community production had been exceeded.
- A freeze on the rates of price-support over several years.
- Ceilings on the amount of wine any one producer may submit for voluntary distillation at preferential prices.
- Increased support for grubbing-up old vines, restrictions on replanting to 50 per cent of the area formerly under vines, and bans on irrigation of land and the adding of sugar to wine.

The northern member states have reacted with broad approval for this stringent plan, though West Germany is flatly opposed to the sugar ban (important in its production) and wants exemptions for hill farmers from the replanting rules.

France, while accepting many elements in the package, is arguing strongly for national production quotas fixed at 85 per per cent of current output.

Both the French and the Commission schemes have met a brick wall in Italy, which, with Greek support, claims that incentives for grubbing-out vines and efforts to encourage consumption would be sufficient to tackle the problem.

The likely outcome is that an amended version of the Commission's scheme will be accepted by all except the Italians, who will then come under intense pressure, sweetened with some concessions, to bow to the inevitable.

Violence flares over Malta's church schools

NEITHER the Maltese Government nor the island's powerful Roman Catholic church appeared ready at the weekend to step back from a devastating clash over church schools which has sparked increasing violence and social tension. Godfrey Grima reports from Valletta.

Fighting broke out again in Valletta yesterday after a religious ceremony marking the tenth anniversary of the ascension to the island's bisopric of Archishop Joseph Mercieca. A late night meeting on Friday between the Archbishop and Mr Dom Mintoff, the Maltese premier, did not raise any hopes of a compromise in the dispute over Mr Mintoff's decision to force church schools to abandon tuition fees.

Violence and threats of unest are mounting. On Saturday a bomb placed outside the house of a member of the church hierarchy rocked a Valletta suburb while trade unions are warning of disruptive action in government departments this week.

The Government is apparently convinced that the church and the opposition parties are in alliance against it. The church has decided to close from today eight secondary schools until the constitutional court has ruled on whether the Government's measures are legal or not.

WORLD TRADE NEWS

Japan to cut VCR exports to EEC by 10%

TOKYO. Japan's Ministry of International Trade and Industry said at the weekend that it has asked Japanese manufacturers of video cassette recorders (VCRs) to curtail their exports of finished sets to the European Community by at least 10 per cent this year to maintain "proper prices."

The Ministry has offered "administrative guidance" to VCR makers to cut down their exports to the EEC during the Christmas season, a Miti official said. Japan agreed with the EEC last year to limit its exports of VCRs this year to 3.95m finished sets and 600,000 knockdown sets to be assembled in Europe.

The new cut has been decided upon to avoid price competition among Japanese makers because of slackening demand for VCRs in Europe, said the Miti official. Each maker is to be required to cut back more than 10 per cent of its current allotment.

Notification of the measure will be formally conveyed to Viscount Etienne Davignon the EEC vice-president, who is scheduled to start a visit to Japan today.

The guidance does not affect knock-down units, the Ministry official said. He declined to give figures of VCR exports to the EEC this year, but the Japanese economic daily newspaper Nihon Keizai Shimbun said they had declined 11.7 per cent compared with the same period last year.

The Electronics Industries Association of Japan announced last week that Japan's total exports of VCRs climbed to an all-time high in August, reaching 1.993m units, up 51.7 per cent from a year earlier. The U.S. accounted for 52.5 per cent, while 19.1 per cent, or 380,825 units, went to the EEC.

● The Expressway and Rapid Transit Authority of Thailand has awarded a $40m contract to a Japanese-Thai consortium for the construction of a 450 metre bridge across the Chao Phya River, Nissho Iwai, leader of the consortium said.

Construction of the cable-stayed bridge is expected to start next month

Agencies

UK company in £21m gas plant contract

● HONG KONG and China Gas is ordering four gas-making plants worth £21m from Babcock Woodall Duckham of the UK, Reuter reports. The combined gas output from the new plants will total 100m cubic ft daily, doubling the company's existing capacity. They will be sited at the Tai Po industrial estate in Hong Kong's New Territories.

'Anti-trade' Bill rushes through U.S. Congress

BY STEWART FLEMING AND NANCY DUNNE IN WASHINGTON

ONE OF the most complex and some fear, dangerous reforms of trade law seen in the U.S. in recent years will undergo its final test in the House of Representatives this week. The measure, which has already passed the Senate and the house Ways and Means Committee was described by the Washington Post last week as the "Anti-Trade" Bill.

The newspaper said: "The trade bill now rolling through Congress like a runaway truck . . . is dangerous to the American economy at home and to American interests abroad."

The Bill appeared from almost nowhere a week ago, to the astonishment even of Senate majority leader Howard Baker. Astonishingly, the Senate passed its version of the legislation, which had earlier been given no chance of completion this term, unanimously.

The new Bill is an extraordinary combination of free trade initiatives, such as the extension of the Generalised System of Preferences (GSP) and abolition of import duties on semi conductors, and of protectionist measures which seem destined to secure approval because Congressmen need the votes in the November elections.

Lost in the rush is anything which smacks of trade policy or even intelligent debate about trade policy and diplomats in this field. They are wringing their hands with frustration because of the difficulty in discovering even what is, and is not, in the legislation so as to put forward their views.

Some of the legislation as it stands is certainly seen by trade experts to be illegal under the rules of the General Agreement on Tariffs and Trade. And there is widespread agreement that other changes will open the door for industries such as the copper and footwear manufacturers, denied protection this year, to come back in 1985 with new complaints and far better legal backing to make them stick.

That the new legislation has come so far so fast, and is almost certain to find its way to the President's desk within the next week, reflects an unusual confluence of political currents, both old and new.

Pre-election pressure to bring something home to the voters from Washington has meant that the legislation in some cases has been designed to protect local business interests from foreign competition, but in others to give tariff relief to certain imports so that local industry can have access to slightly cheaper components. Cheaper imported umbrella frames from Taiwan, for instance, will help manufacturers in Senator John Glenn's home state of Ohio.

Other forces pushing the omnibus trade legislation through quickly include the Reagan Administration's desire to see Congress approve new laws to allow the creation of a bilateral free trade agreement with Israel, which will appeal to the Jewish vote.

Its backing for an extension of the GSP is to avoid the U.S. being placed in the humiliating position of being the only major advanced industrial nation which has not approved it. This would not sit well with its public stance as the economic locomotive pulling the Third World out of recession and debt.

The flood gates for the new legislation were apparently opened by President Reagan's decision a week ago to deny the steel industry quota and tariff protection but to promise to negotiate "voluntary" restraint agreements and make them enforceable at the U.S. border with new legislation.

That legislation, as now written in Congress, will aim to hold imports to 17 per cent of the U.S. market rather than the 20 per cent the Administration wanted, and will pressure the steel industry to modernise, something the Republicans wanted to avoid.

The legislation contains a new version of the wine Equity Bill which could allow grape growers to file a lawsuit to protect the wine industry under Gatt rules only industries may sue claiming injury and it remains to be seen whether the principle that primary producers may go to court over a manufactured product will be extended beyond the wine industry.

Staff officials in congress are also anticipating that as part of the floor debate over GSP an effort will be made once more to remove South Korea, Hong Kong and Taiwan from the list of countries who qualify for favourable tariff treatment. In committee, the House has already voted to limit the GSP to five, rather than ten years.

Another general revision to trade law included in the Senate Bill would require the International Trade Commission to put emphasis on levels of import penetration and job losses, rather than the health and profitability of an industry in determining whether it had been injured. The footwear industry was denied protection this year because it is profitable. Next year, if the law passes, it would have a better chance of winning such a case.

Supporters of the Bill who are also sympathetic to free trade argue that both the Senate and House have defeated some of the more blatantly protectionist proposals, such as the pressure for import quotas on tuna or textiles. But they concede that the procedures of the coming week could open the door for new protectionist measures to be inserted.

Those procedures, which are critical for the legislation's further progress, will be determined by the House Rules Committee today, when it decides whether or not to limit both debate on the House floor and the right to introduce floor amendments to members of the Ways and Means Committee.

If, as expected, the legislation is kept on a fast track, then a House/Senate conference, probably on Wednesday, will be charged with making the critical decisions on the final shape of the new law. Congressmen with an interest in particular clauses of the Bill, or who are fighting tight re-election campaigns are already jockeying for positions at the conference table.

Democracy will be in action this week in Washington and it will not be a pretty sight. The international trade community, waiting in the wings, can only watch anxiously.

Treasury and ECGD meet on export risk after Lawson pledge

BY CHRISTIAN TYLER, TRADE EDITOR

A MORE lenient policy towards insuring UK exports to indebted countries may emerge from discussions between the Treasury and the Export Credits Guarantee Department. Officials are trying to work out how the loss-making ECGD could take on extra risk without abandoning all pretence to prudent underwriting.

The discussions, instigated by the Treasury, follow a Government commitment to support trade credits to countries that have rescheduled their debts so that they can continue to import necessary goods and services.

A review of policy was announced by Mr Nigel Lawson, the Chancellor, at the International Monetary Fund and World Bank meetings in Washington last week. His aim is to get similar commitments from all the export credit agencies in the industrialised world so that they can jointly boost trade finance to struggling countries.

The ECGD may protest, however, that it cannot relax its underwriting criteria without undermining its financial objectives. The Treasury may be asked to take the added risk itself. When a country is forced to reschedule its debts, the ECGD suspends credit until payments start to flow again and some track record has been re-established.

The Government is now proposing that cover should be maintained for longer and restored more rapidly, at least for exports that help the buying country's economic recovery.

That would allow British exporters safely to continue selling to existing customers, perhaps to make contracts with new clients, and to get ECGD bank guarantees for export loans at subsidised rates of interest.

At present the ECGD is "off cover" for a few countries—notably Argentina—and has imposed severe restrictions even on its insurance of short-term business with most of the 30 countries that have fallen behind on their repayments. Insurance for longer-term contracts is virtually unobtainable.

If the problem of who takes the added risk can be resolved, the new system will be announced to Parliament in the next session. The Public Accounts Committee of the Commons, in its last report on the ECGD, showed concern about the department's high exposure in risky markets and urged it to be doubly prudent in its underwriting.

Because of the recession and the debt crisis, the ECGD is showing its first ever trading loss and is being forced to borrow over £200m from the Consolidated Fund to make good a rising cash deficit.

$50m Cathay Pacific order for Rolls-Royce

BY DAVID DODWELL IN HONG KONG

CATHAY PACIFIC, Hong Kong's flag-carrying airline, has ordered engine spares from Rolls Royce worth $50m, Mr Michael Miles, chairman of the group which controls the airline, revealed at the weekend.

Mr Miles also noted that the airline is almost certain to take up an option to buy a stretched upper-deck Boeing 747, costing about $80m, at the end of the year.

Mr Miles, chairman of Swire Pacific, the British company that owns 70 per cent of Cathay, said he was able to confirm the purchases following the publication last week of the joint Sino-British declaration on the future of Hong Kong once China regains soveignty of the territory in 1997.

Cathay has welcomed the agreement, saying it provides a "sound basis to continue working and investing in Hong Kong." This is in spite of a number of complex clauses in the agreement which suggest that CAAC, China's civil aviation authority and also its national airline, is keen to use the recovery of Hong Kong as a windfall opportunity to acquire new airline routes.

Iraq chooses pipeline contractor

BY RICHARD JOHNS

IRAQ is understood to have selected the Italian-French consortium led by Saipem for the construction of the oil pipeline which will connect its Southern fields with Saudi Arabia's trans-peninsula system which has its outlet at Yanbu on the Red Sea.

The value of the contract is believed to be nearly $600m. Other members of the consortium are Snam Progetti, Sider Export and Spie Capaj.

Saipem and Brown Root, consultants for the project, were unable to confirm last week a report from Baghdad quoting a Ministry of Oil official as saying that the contract had been signed on Thursday. But the Saipem group had emerged as the clear front-runner, according to well-informed business men recently returned from Baghdad.

The contract will give Iraq additional export capacity bypassing the Strait of Hormux of 500,000 barrels a day (b/d), the 630 km long pipeline will link Iraq's fields to pump station PS3 on the Saudi pipe? line from the Eastern Province to the Red Sea. Iraq intends to complete the pipeline within a year.

Under this first phase of the project to enable Iraq to boost its exports, Saudi Arabia will share the capacity of its facility, which can carry a maximum of 1.85m b/d. Under the second phase, a separate pipeline from Iraq to the Red Sea will be built, with a capacity of up to 1.6m b/d, according to present plans.

Financing deals for Colombian metro agreed

BY JOHN DAVIES IN FRANKFURT

CONTRACTS HAVE been signed in Frankfurt to provide more than DM 1bn (£266m) to help finance a new urban railway system in the Colombian city of Medellin.

A consortium of West German and Spanish companies, headed by Maschinenfabrik Augsburg-Nuernberg (MAN) and Entrecanales y Tavora of Madrid, won the order for the DM 1.5bn project against tough international competition.

The Colombian communal concern planning the rail project will receive credit of DM 485m through bank consortia led by Dresdner Bank of West Germany and by its Luxembourg subsidiary. Most of the credit is covered by Bonn government guarantees.

A further DM 537m credit will come from the Kreditanstalt fuer Wiederaufbau, the Frankfurt-based institution owned by the federal and state governments, whose activities include export finance. Its package contains DM 52m from a Bonn Government fund to finance economic co-operation between Colombia and West Germany.

Further finance is to come from Spain, including the Banco Exterior de Espana. Credit terms were a key element in competition for the job, which will be the largest rail construction project under way in South America.

Apart from MAN, the engineering and truck group, the chief West German partners involved are Siemens, the electrical concern, and Dyckerhoff and Widmann, the construction group. The rail consortium is hoping that the project will help it to gain similar work in South America.

WORLD ECONOMIC INDICATORS

FOREIGN EXCHANGE RESERVES (U.S.$m)

	July '84	June '84	May '84	July '83
U.S.	6,105	6,329	6,430	7,271
Japan	20,993	21,002	21,150	20,748
W. Germany	38,416	38,802	39,459	38,214
UK	7,001	7,057	7,500	9,013
Italy	18,531	17,920	17,522	18,579
Netherlands	8,508	8,434	8,580	8,944
Belgium	3,136	3,159	3,174	4,442
	June '84	May '84	Apr. '84	June '83
France	19,419	19,304	18,935	15,917

Source: IMF

SHIPPING REPORT

Small tanker business improves

BY ANDREW FISHER, SHIPPING CORRESPONDENT

SMALLER TANKERS below the very large crude carrier (VLCC) size continued to see an increase in business last week, though rates have still to show a marked increase.

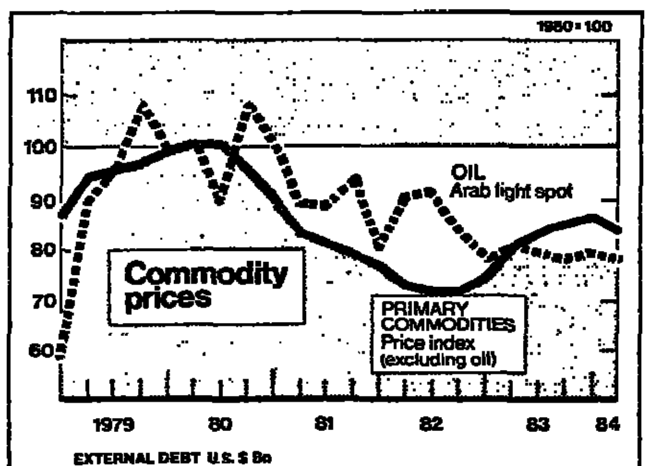
In the Gulf, despite the absence of further attacks on shipping, inquiry remained poor. Other loading areas like Indonesia, West Africa, the Mediterranean and the North Sea were more lively.

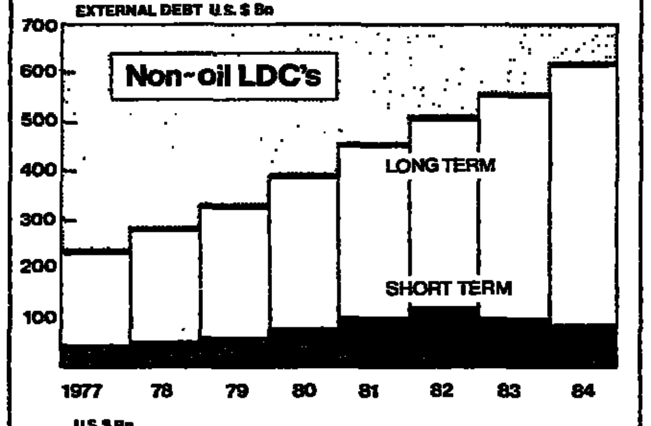
One 260,000 tonne cargo was fixed from the Gulf to Singapore at Worldscale 23.75, which, Galbraith's said, indicated a possible rate of Worldscale 20 to the West, if the business was there. This would be below rates obtained earlier in 1984 and back to the poor levels of the previous two years.

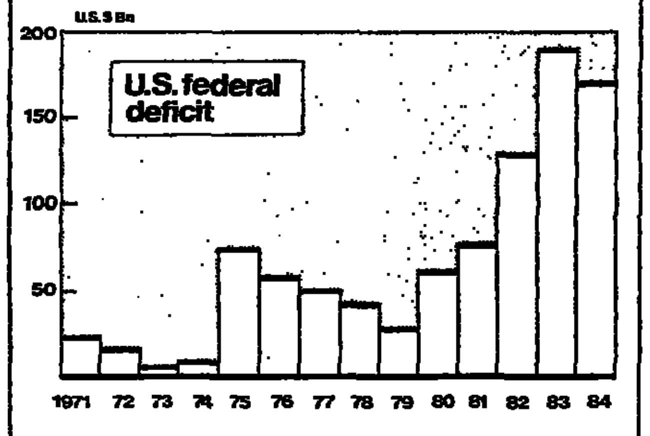
"Owners with ULCC's (ultra-large crude carriers) must be wondering when they are likely to see general market business being announced for their tankers again, because it is now a very long time since an order for a 350,000-tonner was openly quoted," the London shipbroker said.

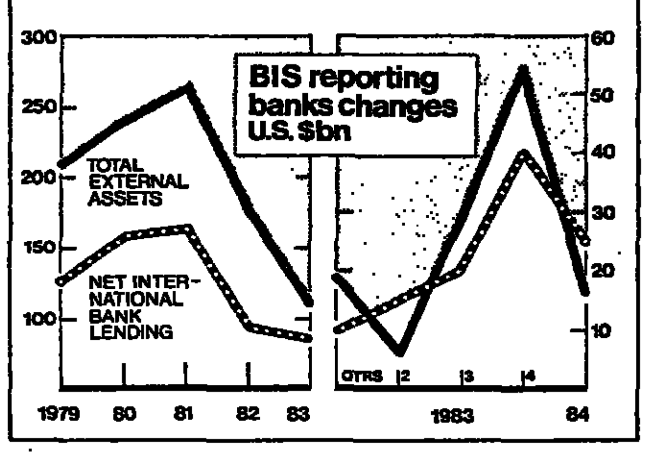
The dry cargo market ended the week on a quiet note, especially across the Atlantic. Grain trading was especially slack.

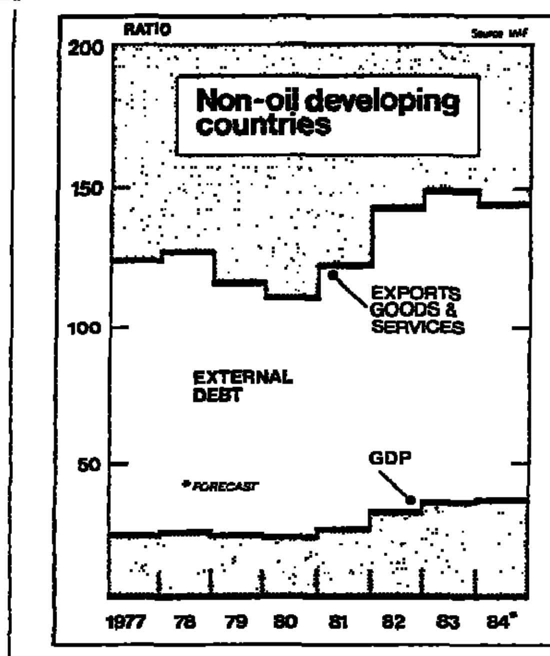
STATISTICAL TRENDS: DEBT AND FINANCING

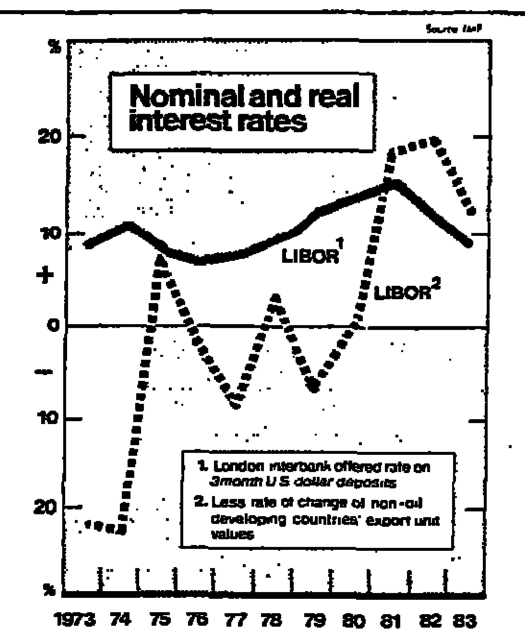


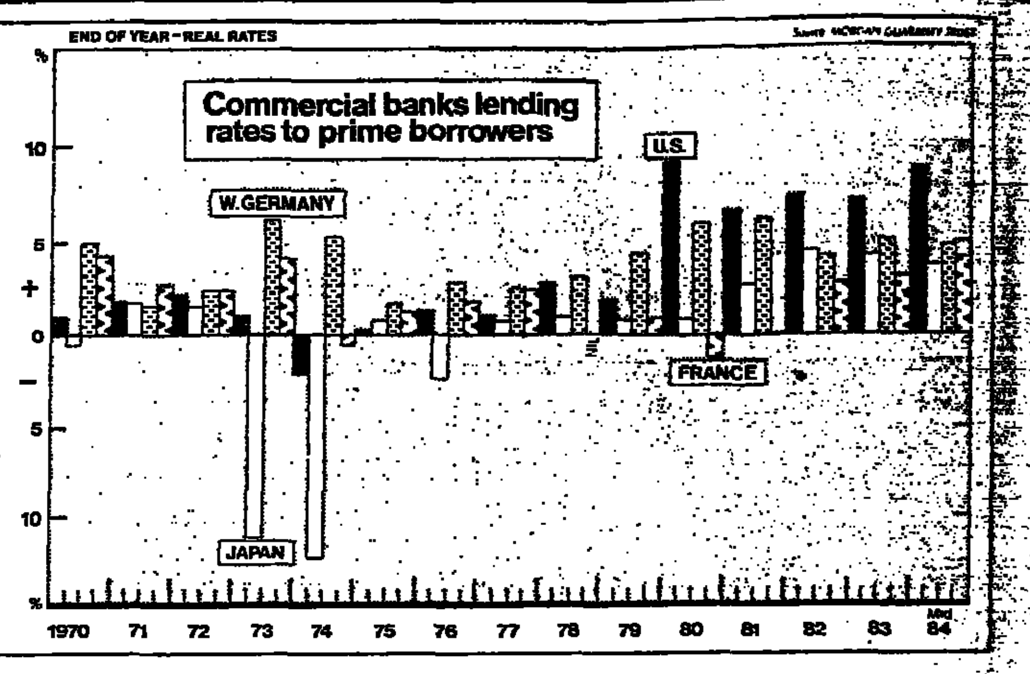












Interest rates cloud growth prospects

BOTH THE industrialised countries and the less developed countries (LDCs) have been severely affected by the high real interest rates which have dominated the world's money markets for the past three years.

The effect on LDCs has been an increase in their debt service commitments at a time when they were also faced with a cutback in available external finance and increasing current account deficits. Industrialised countries have seen interest payments become an increasingly important item of government expenditure.

The rate of growth of international bank lending reached a peak in 1981 and since then has fallen dramatically. Total external assets of the reporting banks in the Bank for International Settlements area grew by only $108bn in 1983 compared with $265bn in 1981. This is reflected in the current account financing of non-oil LDCs, which have faced a substantial cutback in private lending, down from a high of $71bn in 1981 to $20bn in 1983.

This squeeze on financing, together with falling commodity prices, forced non-oil LDCs to cut back imports, with a consequent loss of output. These pressures were responsible for the wave of debt rescheduling which has reduced their debt service ratio from 24.5 per cent in 1982 to an estimated 21 per cent in 1984.

Output has improved, with a forecast real growth rate this year of 3.5 per cent. Export volume is expected to rise by 7 per cent, and the fall in import volume to be reversed. There has also been an upturn in commodity prices. But the effect of high real interest rates is to require an increase in the volume of exports just to service a fixed amount of debt.

Production cuts and a fall in the price of oil (in terms of U.S.$) have turned the current account surplus of $111bn which the oil-exporting countries achieved in 1980 into a deficit of $16bn in 1983. This has been accompanied by a marked reduction in their imports of goods and services.

In the industrialised countries, the 1970s and early 1980s saw increases in government deficits as a proportion of gross domestic product (GDP).

General government debt to GDP ratios are now between 40 and 60 per cent for many countries. Some are higher: Italy's stands at 80 per cent and Belgium's at 103 per cent. Interest payments on public debt now account for between 7 and 18 per cent of current expenditure in EEC countries.

Japan's tighter fiscal policy has led to a reduction in the ratio of deficit to GDP, and there has also been a fall in West Germany's, but the U.S. federal deficit soared between 1981 and 1983, rising from 1 per cent of GDP to 3.9 per cent.

With real average interest rates on debt of 2 to 5 per cent, real growth rates of more than 2 per cent must be achieved for many countries to remain at the same level of indebtedness.

The upturn in the world economy has brought some relief to non-oil LDCs because of an increase in world trade. But growth outside the U.S. and Japan is still patchy, and the mounting U.S. deficits on current account and federal spending are drawing in finance from the developed world.

Although the LDCs have reduced their debt service ratios by rescheduling short-term debt, the ratio of foreign debt to GDP continues to rise. High interest rates show no sign of disappearing in the near future and they continue to cast a cloud over both developed and developing countries.

CURRENT ACCOUNTS

US$bn	Non-oil developing countries	Oil exporting countries
1977	−30.4	29.4
1978	−42.3	5.7
1979	−62.0	62.5
1980	−87.7	111.0
1981	−109.1	53.4
1982	−82.2	−12.0
1983	−56.4	−16.2
1984†	−50.0	−8.0

† Forecasts.

Source: IMF

DEBT: NON-OIL LDCs

Debt Service Ratio*

1977	14.8	1981	21.3
1978	18.1	1982	24.5
1979	18.1	1983	21.6
1980	17.2	1984†	21.1

† Estimate. * Payments % of exports of goods and services.

Source: IMF

Real Growth

% change

	Industrialised countries	Oil exporting	Non-oil developing
1977	3.9	6.3	5.7
1978	4.1	2.3	6.4
1979	3.5	3.7	5.1
1980	1.3	−2.0	5.0
1981	1.6	−4.0	2.8
1982	−0.1	−4.3	1.5
1983	2.3	−1.1	1.6
1984	3.6	4.7	3.5

Source: IMF

Non-oil LDCs

Current Account Financing US$bn

	Long-term borrowing from official creditors (net)	Borrowing from private creditors (net)
1977	13.1	18.4
1978	13.8	32.8
1979	17.0	36.5
1980	20.0	50.6
1981	22.6	70.5
1982	21.6	35.2
1983	22.6	20.2
1984*	23.1	21.2

* Forecast.

Source: IMF

General Govt. Financial Balances

% GDP at market prices

	1971	1973	1975	1977	1979	1981	*1983
U.S.	−1.7	0.5	−4.2	0.9	0.6	−1.0	−3.9
Japan	1.4	0.5	−2.6	−3.8	−4.8	−4.0	−3.1
Germany	−0.1	1.2	−5.7	−2.4	−2.7	−4.0	−2.7
France	0.7	0.9	−2.2	−0.8	−0.7	−1.9	−3.2
UK	1.5	−2.7	−4.6	−3.2	−3.2	−2.8	−3.7
Italy	−7.1	−8.5	−11.7	−8.0	−9.5	−11.7	−11.8

* Estimates.

Source: OECD

Commentary by Our Economics Staff; data analysis by Financial Times Statistics Unit; charts and graphs by Financial Times Design Department.

LDC Debt

Debt exposure to BIS Banks US$bn March 1984

Mexico	64
Brazil	62
Argentina	25
Venezuela	22
S. Korea	20
Chile	12

International Markets Funds

US$bn	Bank loans	Bonds
1972	8.7	11.2
1973	20.8	10.0
1974	28.5	12.3
1975	20.6	22.0
1976	28.4	34.6
1977	34.2	36.1
1978	73.8	37.4
1979	79.3	40.6
1980	81.0	39.8
1981	147.7	52.8
1982	103.4	76.5
1983	80.5	77.1

Source: OECD

LDCs Trade

	Volume of exports	Volume of imports
1977	4.7	7.7
1978	10.0	8.6
1979	8.0	10.7
1980	9.0	6.8
1981	7.8	3.1
1982	1.7	−8.3
1983	5.3	−0.6
1984*	7.0	6.5

* Forecasts.

Source: IMF

Current Account

$bn

	U.S.	Japan	EEC
1973	7.1	−0.1	2.9
1974	2.0	−4.7	−9.0
1975	18.1	−0.7	3.5
1976	4.2	3.7	3.9
1977	−14.5	10.9	3.0
1978	−15.4	16.5	19
1979	−0.9	−8.8	−8.4
1980	0.4	−10.7	−37
1981	4.6	4.8	−13
1982	−11.2	6.9	−9
1983	−40.8	20.8	3.0
1984*	−86	30	5.0

* Forecast.

Source: OECD

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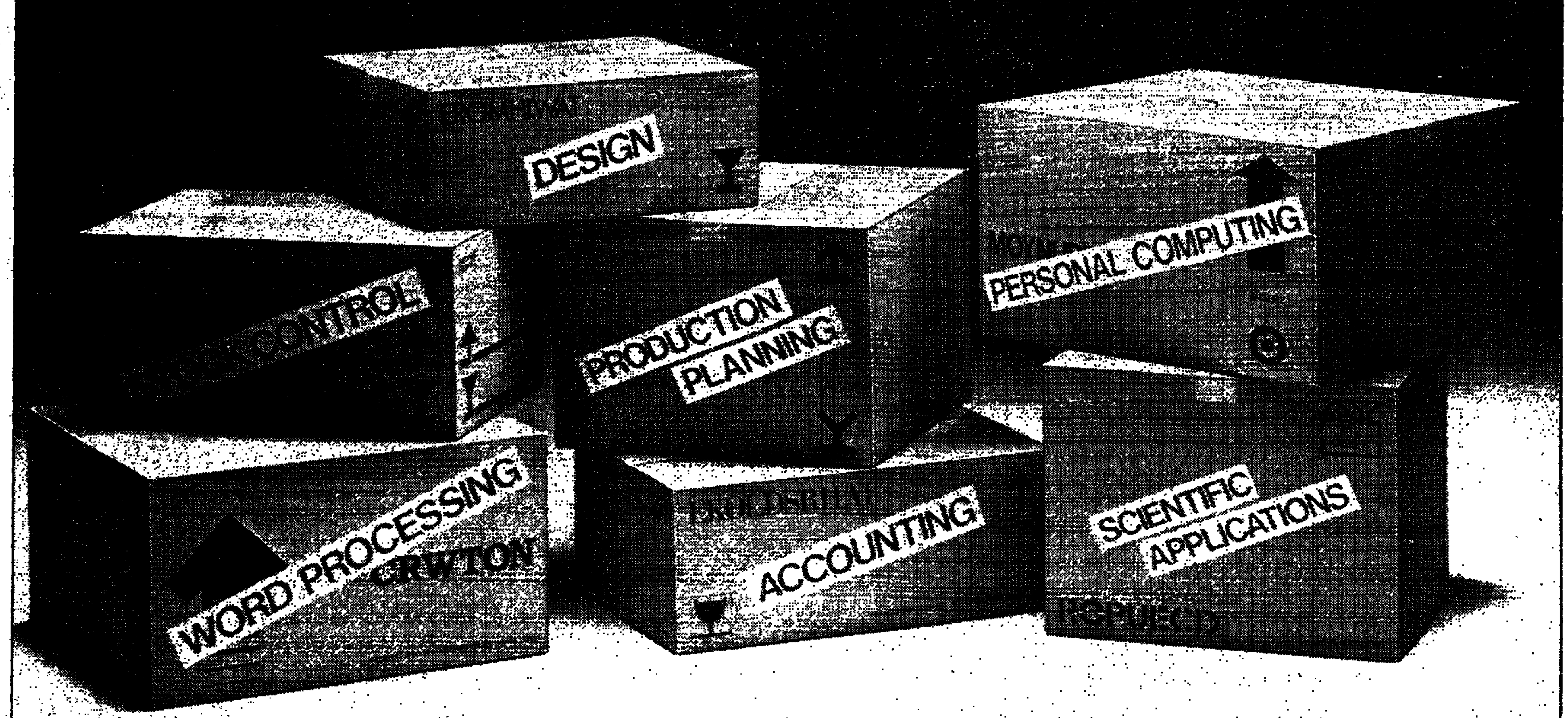

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UK NEWS

Return on capital 'still below levels of 1970s'

BY PHILIP STEPHENS

THE RATE of return on capital in British industry is still below the levels of the 1970s, despite a surge in corporate profits over the past two years, according to a new study by the Bank of England.

The study, to be published later today in the Bank's quarterly bulletin highlights, however, the sharply differing performance of companies in the capital goods and the consumer sectors.

Based on an analysis of 1,800 of Britain's largest companies, it says that apart from the electronics industry the average rate of return for companies producing capital goods is well below the level of the last decade.

The Bank says that the construction industries have continued to suffer from low private and public investment, while profitability in the motor and metals industries have been even more depressed.

The buoyancy of the electronics sector during the recession reflected income from the large liquid assets held by several major companies and the relatively high proportion of defence contracts received by such businesses.

This has allowed electronics companies to remain at the top of the profitability league, with an average rate of return of more than 20 per cent last year.

The Bank estimates the rate of return enjoyed by the capital goods sector, as a whole, at 7 per cent on a current cost basis in 1983, up slightly from the 5 per cent recorded in the depths of the recession in 1980.

Current cost data is not available for the 1970s, but historical cost figures show that current profitability is at only two-thirds of the peak levels seen in 1976 and 1977.

The figures are in stark contrast to the healthy profits of consumer goods' manufacturers. This sector suffered only a small drop in profits during the recession and has recorded steady increases since 1980.

The resilience of consumer goods companies to the recession was helped by the large overseas interests of many major companies, particularly food, tobacco and pharmaceutical producers.

Corporate tax changes announced in this year's budget will tend to benefit the more profitable companies and those in the financial and services sectors, the Bank says. Less profitable companies and those in capital-intensive industries are likely to be worse off.

The measures will, however, reduce distortions between the relative costs of employment and capital and will remove most of the bias in favour of debt rather than equity finance.

● A separate article in the bulletin says that the steep rise in profitability of industrial and commercial companies as a whole since 1979 has transformed their financial position.

Call for cheaper borrowing

BY ROBIN PAULEY

A CHANGE in Government policy to ensure interest rates are cut will be needed to prevent the modest British economic recovery from fading away next year, as official forecasts say it will, according to some City of London economists.

The Central Statistical Office's indicator predicting the state of the economy 12 months ahead has fallen for five successive months, and the indicator predicting the economy six months in advance has had three successive falls, indicating that the current economic cycle has peaked and may be slowing down.

However, brokers Capel-Cure Myers and de Zoete & Bevan agree that policy changes could help to prolong the expansionary phase and stop the downswing from turning into a recession.

The economists at de Zoete & Bevan think that although the British economic climate has been deteriorating since the spring, even after allowing for the impact of the miners' strike, it could now bounce back briefly.

The key then would be to change policy by relaxing, albeit modestly, the emphasis given to inflation in the monetary policy guidelines. "An upward deviation of inflation from around 5 per cent may not now be met by higher short-term interest rates, at least not immediately," said Mr Roger Bootle at Capel-Cure Myers.

Defence of N. Sea price might harm trade, says BNOC

BY DOMINIC LAWSON

BRITISH NATIONAL Oil Corporation (BNOC) fears that many companies might abandon the UK as a long-term supplier of oil, unless the UK Government changes its attitude to North Sea oil prices.

The Government has set its face against any cut in the $30-a-barrel term price for North Sea crude. Until recently the Government had publicly maintained that selling rates were agreed between BNOC and the oil industry in accordance with market conditions and without interference from the Government.

However, when North Sea oil prices tumbled to below $26.50 at the beginning of August, Mr Alick Buchanan-Smith, Energy Minister, wrote to eight major oil companies telling them not to put any pressure on BNOC to cut the official $30 price.

BNOC was not informed in advance of the move, but it is now no longer regarded by many companies as a bona fide negotiator of North Sea oil prices.

Traditionally, the main advantage of buying term oil from BNOC was that it was a secure source of supply that would charge a price that reflected the market's estimate of the value of North Sea oil.

With an oil glut, however, security of supply is no longer of great importance. More important, the oil industry now sees the UK Government as being as determined as any Opec Government to defend its oil price at all costs.

The main victims of such a policy are not so much the oil majors, who are themselves principal producers of North Sea crude, but refining companies, particularly in Europe.

They have suffered, not only by paying well over spot market prices for BNOC crude, but additionally by the strength of the dollar, the currency in which North Sea oil is traded.

About 30 per cent of BNOC's term crude is sold to small refining and marketing companies. An oil company executive said last week that BNOC was in danger of losing that business. BNOC is about to agree a continuation of the $30 term price for the final quarter of the year.

Many companies would prefer to see a $29 price, which is the market price for forward deals in November shipments. However, the negotiations have taken on the aspect of a charade, since the companies know that BNOC would be prevented by the Government from agreeing to such a price reduction.

As part of its statutory duty, BNOC buys 51 per cent of all North Sea production, at term prices. But as companies have increasingly turned away from BNOC as a supplier, the Corporation has been forced to sell large volumes of the crude it purchases at a loss on the spot market. That volume might be running at up to 200,000 barrels a day.

At present North Sea spot prices of $28.50, BNOC could, in theory, be losing up to $300,000 a day. Although BNOC has other, profitable activities, it now seems that it is likely to make such a large loss this year that it will find it almost impossible to meet the financial target set by the Government, of making a £10m pre-tax profit in 1983-86. In 1983, BNOC made £800,000 before tax.

Defeat for Lonrho in Fraser election

BY JOHN MOORE, CITY CORRESPONDENT

LONRHO, the international trading group, has failed to gain the election of two of its directors to the board of House of Fraser, the Harrods stores group which Lonrho is battling to gain control.

But Mr Roland 'Tiny' Rowland, Lonrho's chief executive, has gained his own election to the Fraser board after a full count of the votes cast by shareholders of the stores group.

Professor Roland Smith, chairman of Fraser, said yesterday, "This is quite a defeat for Lonrho. We will just go on running the company and hope now we have a free hand."

Mr Paul Spicer, a Lonrho director who had been proposed for a seat on the Fraser board by his company, said yesterday that Lonrho's campaign "will go on forever. We will continue to advocate commercial policies for the benefit of House of Fraser."

Mr Rowland said: "This is just an interlude. A break – rather like "Dallas" between series. I cannot be such an unacceptable person if 30m shares from institutions are cast for my reappointment to the board. And if I can sell Lonrho's shares for a £50m profit, as I can, I don't mind being humiliated in this way. But we will continue at House of Fraser."

At Lonrho, the setback to the group's plans to secure the election of Mr Terry Robinson and Mr Paul Spicer to the Fraser board, on which sit Lord Duncan-Sandys, Lonrho's chairman and Mr Rowland, is attributed to the defection of the Merchant Navy Officers Pension Fund which holds more than 5m shares.

The fund has supported Lonrho for some time in its campaign at Fraser and this time supported two Lonrho resolutions. But it decided to support the Fraser board over the re-election of Professor Smith, and Mr Ernest Sharp, a non-executive director. It also supported the re-election of Mr Rowland but is said to have voted against the election of the two other Lonrho directors, which proved crucial to the outcome.

Union guilty of discrimination

By David Goodhart

THE PRINT UNION Sogat 82 has been found guilty of unlawful sex discrimination by the Equal Opportunities Commission in its first important investigation of a trade union.

The decision centres on the union's control of job allocation by its London Central branch, which has only 12 women among 13,000 members.

The commission's non-discrimination order is likely to cause serious problems for the union and its new general secretary-elect, Ms Brenda Dean.

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If you think you might be interested in other opportunities in Coopers & Lybrand, write to Jeremy Spurling (reference A5) with your details.

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UK NEWS

Small investors face 'squeeze' in City of London reforms

BY WILLIAM DAWKINS

PRIVATE INVESTORS will be squeezed further out of the equity markets in the coming shake-up in the operations of the City of London, Mr Christopher Johnson, group economic adviser to Lloyds Bank, says.

Writing in the bank's economic bulletin, published today, he says too little attention has been given to the needs of the small investor in the debate on stock exchange reforms.

The ending of minimum commissions by the end of 1986 would be expected to encourage small savers because the cost of trading should decline with the emergence of discount brokers offering a no-frills service, says Mr Johnson.

However, the experience in the U.S., where fixed commissions were abolished in 1975, shows that many brokers may actually end up charging private clients more than before, and reserve negotiated commissions for the big institutional investors.

"The decline of personal shareholders has so often been remarked upon that their return to the scene may look like a lost cause," Mr Johnson writes.

Inland Revenue figures suggest that about 1.6m individuals own company shares, or just over 3½ per cent of the adult population. While the number of personal shareholders has risen slightly in recent years with the growth in the number of households, the total value of their holdings has fallen in real terms.

UK company and overseas securities held by the personal sector rose from £26.6bn to £53.5bn between 1975 and 1982, in which time the retail price increase rose by 122 per cent. In real terms, the total value of personal holdings fell by 15 per cent. They fell from 19 per cent to just under 14 per cent of the personal sector's financial assets in the same period.

Mr Johnson points out that the UK tax system still encourages individuals to invest indirectly through pension funds or to buy gilts (government stocks) despite the abolition of investment income surcharge in the last budget. Better incentives for direct investment are needed, such as those available under the U.S. individual retirement accounts, which offer tax exemption for $2,000 (£1,626) of personal savings annually, he says.

Privatisation should be one way of encouraging wider share ownership, but Mr Johnson argues that "little attempt has been made so far to stimulate demand by the personal investor."

Electricity levy may recover extra oil costs in pit strike

BY PETER RIDDELL, POLITICAL EDITOR

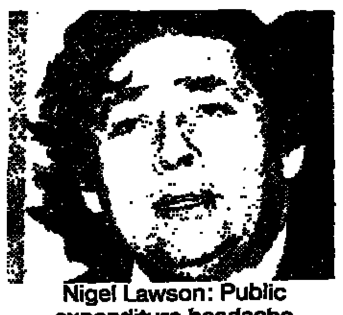
TREASURY MINISTERS are considering the imposition of a levy on electricity bills, already dubbed in Whitehall a "Scargill surcharge," to recoup the extra cost of oil burnt during the miners, strike.

The cost of the strike is now officially estimated at nearly £600m, and is rising at least £25m a week, although many City of London economists have made considerably higher projections of the cost.

The Government has not yet decided about how to allocate the additional cost between electricity consumers and taxpayers, but Mrs Margaret Thatcher, Prime Minister, and Mr Nigel Lawson, Chancellor of the Exchequer are apparently attracted by the idea of an identifiable levy that could be blamed directly on the strike.

The costs of the dispute have emerged as one of the Treasury's main public expenditure headaches, the others being excess local-authority spending and increased expenditure on social security benefits because of the higher level of unemployment than forecast.

Apart from the "Scargill surcharge," no emergency action is seen as necessary in the present financial year, partly because of higher North Sea oil taxes than expected, as a result of the fall in the pound against the dollar.


Nigel Lawson: Public expenditure headache

Discussions on next year's public spending plans, however, are turning out to be difficult in view of the further impact of existing pressures and higher public-sector pay awards than expected. Treasury ministers now appear reconciled to the appointment in due course, as last year, of a small Cabinet committee, or Star Chamber, to narrow the differences between them and spending ministers.

In spite of such pressures, Mr Lawson still regards a further rise in income-tax thresholds and allowances as a priority, well ahead of any cuts in the basic rate of tax.

Consequently, ministers and officials are looking at ways of widening the tax base to raise the required money, in particular by broadening the range of value-added tax (VAT). Despite the controversy over the extension of VAT, to hot take-away foods and house improvements in last March's budget, Mr Lawson still believes the decision makes sense, but he is keeping his options open.

Among possibilities for extension of VAT are fuel and power, construction, books, newspapers and periodicals, transport and children's clothing and footwear.

The autumn economic statement and the spring budget are also likely to contain considerable emphasis on job creation. The Treasury has been at pains to point out, both to the press and to analysts, that Mr Lawson's remarks in Washington last week on unemployment do not imply any change in macro-economic policy.

Instead, the emphasis will be on the easing of restrictions on business and on incentives to provide more low paid jobs for the young.

Under consideration are the abolition next year of wages councils, which set minimum rates of pay in some private-sector industries, and changes in social security benefits to encourage the unemployed to take up low-paid jobs.

Lord Young, the Minister without Portfolio who joined the Cabinet three weeks ago, is closely involved in co-ordinating that work.

De Zoete acquires Far Eastern broking team

BY OUR FINANCIAL STAFF

DE ZOETE & BEVAN, the London stockbroking firm, has acquired the entire Far Eastern team of the broker, Laurence Prust.

The deal is part of De Zoete's ambitions to expand its geographical coverage of the Pacific Basin, now restricted to Hong Kong – where it opened an office 3½ years ago – Singapore and Malaysia. De Zoete, which has been 29.9 per cent owned by Barclays Bank since March, says it is almost certain to open a Tokyo branch soon.

Between 12 and 14 Laurence Prust Far Eastern specialists will move to De Zoete by mid-November.

Two other London stockbrokers are also expanding overseas. Quilter Goodison is planning to set up an international dealing subsidiary by the end of the year to make a market on a dual capacity basis in Continental European stocks.

A spokesman said the firm would shortly complete a funding agreement with Skandia, the Swedish insurance group which owns 29.9 per cent of its shares.

Savory Milln is planning to set up an international dealership early next year to make a market in Scandinavian shares. The firm has traditionally specialised in that region, and was cited as the third best Scandinavian analyst in London in a recent survey by Continental Illinois, the U.S. commercial bank.

FINANCIAL TIMES SURVEY
Monday October 1 1984

Science Parks

After a slow start science parks have caught on strongly in Britain. For universities, industry and local authorities they are providing one answer to the problem of funding high tech research.

Top left: Automatix on the Warwick Science Park. Top right: A blend of the old and new at Springfield House, science park development at Leeds University. Above left: New development at Manchester Science Park—where the first tenant moves in in November—refurbished in high-tech style. Above right: Listerhills science park development at Bradford University

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Universities rush to join the queue

BY ANTHONY MORETON
Regional Affairs Editor

ALMOST two years ago the Town and Country Planning Association held a conference in London to outline the merits of science parks.

It was well attended, with perhaps 150 people squeezing into the association's conference centre in the hinterland of Oxford Street, though only a few of them actually came from universities.

The conference developed the theme that the science park concept was more than merely real estate development and outlined the fact that "many academic institutions in the UK are preparing to release surplus real estate" for such developments.

The point of this illustration is that as late as November 1982, 16 years after the prime minister, Mr Harold Wilson (as he then was), had urged British universities to set up technologically-high-intensive parks, it remained necessary for the association to proselytise.

Today, if any organisation put on such a conference it would be swamped in the rush of universities only too anxious to explain how successful they have been—how they are really putting muscle into their parks—how they hope to set up parks in the near future.

Only three weeks ago Hull came to London to announce not what it hoped to do but that it had actually set up a park and had *four* tenants already (since boosted to seven).

Hull is merely the latest in a long line: Cambridge, Heriot-Watt, Aston, Warwick, Bradford, Leeds, Liverpool, Glasgow and Manchester, are in being; Keele, Surrey, Swansea, Leicester, Durham, Southampton and Newcastle, are among those off the ground. Norwich, Exeter, York, Aberdeen and Aberystwyth are waiting in the wings.

Scratch a university these days and there is a science park very near the surface. Whereas there was a certain amount of uncertainty surrounding the whole idea in 1982, today the subject is bathed in brightness.

University vice-chancellors are falling over themselves to tell *how science-park conscious* they have become.

The reason for the sudden surge in involvement is largely economic. For several years the universities have had to live with fewer resources and the final catalyst appears to have been the University Grants Committee's reallocation of resources in July 1981.

Private work

Universities have therefore seen the science park movement as a means of attracting industry in such a way that some of the work previously undertaken *within the university could now* be done privately but within the university grounds and, often, by staff from the university.

At Hull, for instance, which has lost a lot of its science staff, Professor John Bryant and Dr Eric Thomas set up Laser Monitoring Systems because of the lack of finance for their type of research in the UK.

"We started selling some of the devices which we made," Dr Thomas states categorically, "in order to finance the furtherance of our work."

There is another reason. Most science parks have relied heavily on local authority participation in some form or another, private capital in the early stages being *noticeably reluctant to become* involved (not a feature now as there is ample venture capital available for most projects).

Universities want to repay this commitment by local authorities and put something back into their own communities.

Mr Michael Shattock, registrar at Warwick University and a guiding light of the local science park, says: "A university must recognise that it has a major role to play in its local economy or it forfeits any claim to local support.

"With the decline of the economy in the West Midlands there is a great danger that the bits-and-pieces of industry, the little companies that are essential to the success of the giants as suppliers of components or services, will be swept away.

"We are trying to stimulate *such concerns on our park.* Our intention is to bring companies here who can do something for the area and link them to the university. We have made it a condition to potential entrants that they must have a relationship with us."

The result of the changed circumstances of the past two years is a great upsurge in interest in the parks. Cambridge, the first park really to get into motion, now has 40 tenants (at its peak the great Stanford park probably had no more than 90) of which 16 have arrived this year.

Bradford which only opened its doors in April 1983 has 18 tenants, is full and seeking to expand. Others can point to equal success.

In Scotland the movement has also been helped largely by the Scottish Development Agency, which is highly conscious of the need to attract high-technology industry to the country if it is to come to terms with the decline of the heavy structural industries.

Wales, too, would like to follow the same path, but the Welsh Development Agency has been slower to go down this path, though it is now on it.

The SDA, which has picked out five sites and is promoting them vigorously, is perhaps fortunate in that Scotland lays some justifiable claim to having launched the first science park in Britain. When the Wilson note went out to the universities in 1966 it was immediately picked up at Heriot-Watt and Cambridge.

Heriot-Watt, having moved out of the centre of Edinburgh, wanted to capitalise on the fact that many of its staff had strong links with industry and sought to use its assets to transfer the new information and technology being developed in its laboratories and research institutes to the science-based companies in the area.

At Cambridge, the initiative was picked up by Sir Nevill Mott, then Cavendish Professor of Experimental Physics, who headed a committee that recommended a moderate expansion of science-based industries close to the city to take advantage of the expertise in the university.

His report was picked up by Trinity College, which wanted to develop land it had near the city boundary. With a centuries-long tradition of scientific research by such people as Newton, Cavendish, J. J. Thomson, Rutherford and Adrian, it found the proposal an ideal marriage between what was wanted and what it could offer.

U.S. experience

By this time, as the 1960s turned into the 1970s, U.S. experience had percolated through to a small but select group in the UK. The first U.S. science park (which was not actually called that) emerged because Stanford University wanted to develop land it had available.

By chance, two young men named Hewlett and Packard were among the early tenants and their success undoubtedly helped to fuel the big surge in science parks in the U.S. throughout the 1950s and 1960s.

Hewlett-Packard was by no means the only world-famous name to originate on a science park—Wang and Polaroid are others.

U.S. experience has shown

CONTINUED ON NEXT PAGE

Science Parks 2

Universities join the queue

CONTINUED FROM PREVIOUS PAGE

that it is not sufficient for a university to set land aside, or even to lend resources, for a park to succeed. Links must be forged between university, private enterprise and availability of capial and, above all, the university must have a good scientific record.

By the late 1960s there were probably 80 or so science parks in the U.S. but only those situated in southern California, around Boston and in the Carolina triangle could be said to be "great."

U.S. experience has also shown that it takes a long time *for a science park to mature* and that overnight miracles simply do not happen. The failure rate is high and many small companies remain small companies.

Entrance to Barclays Venture Centre at Warwick Science Park

Those in the UK who look for quick solutions either to their own progress or to that of the British economy are therefore in for a shock.

They may take comfort, however, from the fact that in the U.S. there appears to be a second wave *of interest* in science parks, just as there is a smaller second wave in the UK. Many projects are now being considered, though most of them are the result of universities looking for ways in which to develop sites commercially, as at Ohio or Wisconsin.

The second wave in the UK might even be followed by a third or fourth wave. While science park developments so far have all taken place in conjunction with universities there is no reason why they should be confined to them. A number of polytechnics and colleges of higher education have science departments which are involved *in the sort of work that could* be translated on to a science park and while they may not have the land on which to offer development facilities both the Merseyside Innovation Centre and the Newcastle Technology Centre have shown what can be done within more strict confines.

The concept could even be extended to the point where a company operating in the high-technology field might act as host to burgeoning industry. Plessey at *Wavertree* and ICI's agricultural division at Billingham have already offered intimations of *what might* happen and it is conceivable that high-tech concerns rather than universities might act as the catalyst in future. They, after all, sub-contract a lot of their own work as it is and any science-park-type development would be a logical extension of this.

Science parks offer the chance for Britain to turn its undoubted ability to generate pure research *into a commercial* possibility. They offer, too, a chance for the country to arrest, if only in a small way, the decline of its manufacturing industry.

Britain has been slow to *translate research* into industrial application. Early work on video recorder technology was undertaken, for instance, at York University, and work on liquid crystals, now an essential in watches, at Hull but it was in Japan where the commercial possibilities were fully realised.

The science park movement offers an opportunity to end this profligacy.

It needs changed attitudes. Happily, those changes are taking place. Mr David Butland was member of the staff of Bradford University; now he runs Bradford University Software Scheme.

"Changing to industry meant changing my whole way of thinking," he says. "As a researcher I was *happy to* undertake a project and make the results available to everyone. Now, I have to ensure that my work is turned into something commercially acceptable which will keep me and my staff."

Slow start to new concept

West of Scotland

MARK MEREDITH

WHAT, one may well ask, is a science park? Is it a property development somewhere near a university or a highly managed mingling of academic and industrial talents in a campus setting?

If the scattering of UK science parks form their own association in the coming year, one of their objectives will be to find a stricter definition of the science park concept—*presumably by accepting only* bona fide members true to the active rather than the passive approach to their tenants.

The West of Scotland Science Park is on the more orthodox side of the science park camp. *Created by the Scottish Development* Agency and linked to both Glasgow University and the University of Strathclyde, it is directly involved in the agency's overall strategy to foster new and indigenous high technology industries in Scotland.

It is, in short, a keenly *managed park ready to* be discriminating even in getting the right type of first-phase industry involved in research. This might explain why, after one year in operation, the 72-acre park has only four tenants.

"I'm not displeased. I expected a slow start. Then the concept is new and few really understand it," says Colin Bond, the park's director and the man responsible for organising the maximum interaction between the resources of the city's two *universities and resident* companies.

The universities have no direct financial stake in the West of Scotland Science Park, which is in the more leafy Western suburbs of the city. But *the commitment* from the academic side is there.

Scotland has *now one of* Europe's highest concentrations of electronics, employing about 40,000 people. In promoting this industry the SDA has tried not only to create jobs but attract companies who will use the *local* academic resources to develop new product lines or encourage new spin-off companies in the tradition of California's Silicon Valley.

Right atmosphere

Science parks are designed to provide the right atmosphere for the entrepreneur, who is possibly quitting a resident multinational with his own idea and anxious to put it through its early research and prototype *development*

The Scottish Development Agency would like to see the big resident multinationals foster a growing host of service companies supplying their needs.

Alongside would be an equally burgeoning growth of new pro*ducts developed* in Scotland by entrepreneurs and scientists taking new electronic concepts to the science parks and then on through into the manufacturing stage with the development of technology parks like that now being set up in Dundee.

At the West of Scotland Park a total of 250,000 sq ft of unit space will be provided complete with a projected addition of 50,000 sq ft of advice unit space and 150,000 sq ft in custom-built units.

The project has cost the SDA £4m in land and building costs at a time when it is about to be much less active in the industrial property market. Thus the next phase in building at the park *could well be provided by* private developers.

At present the tenants include Flexigage (conductive polymers), Strathand (distributive microcomputers), Green Wood Electronics (microwave transmission), and Data Point (computer networking).

RICCARTON RESEARCH PARK

By MARK MEREDITH

Links with industry fostered

THE RICCARTON Research Park, at Heriot-Watt University in Edinburgh, sees itself as not only the first but also as a highly exclusive type of science park.

This park, part of the new university campus on the south-western fringes of Edinburgh, has actively cultivated research, development and design, and prototype development links with industry and, *at the same time, has shunned* any expansion into forms of manufacturing.

The 12 residents on the first developed half of a 56-acre research park are companies working on the kind of projects most likely to coincide with research projects and interests of university and staff. This was partly behind the university's single-minded approach to the park created in 1972.

The university has been the sole financing agent in this small hybrid of a science park and only the Scottish Development Agency has provided some funds to build accommodation for 12 research and development enterprises on one four-acre site.

The university administration wanted to foster better links with industry as it moved from the Edinburgh city centre to the new campus. It set out to attract *pure research* and applied *industrial* projects by offering companies the chance to integrate fully with the university.

The staffs of resident companies—there are about 250 jobs all told — are allowed full access to university facilities and encouraged to join in all university functions.

This formula seems most likely to attract the kind of interaction which is essential object of the science park concept. The cost, however, for this pattern does seem to be a limitation of the size of the company which is attracted to Riccarton and consequently the revenue that comes in the form of rent.

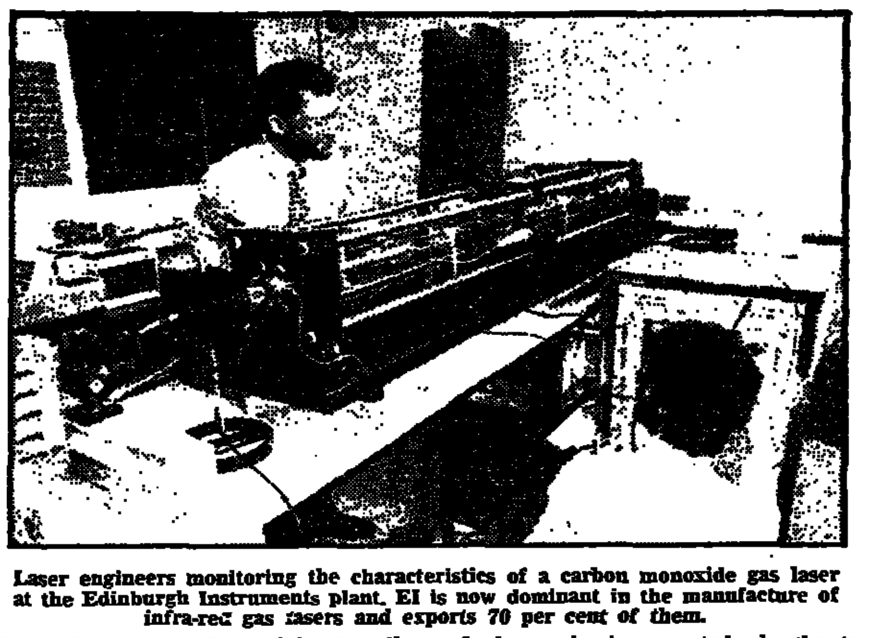
"It is often through social contacts that most of the ideas are exchanged," says Mr Ian Dalton, the park's administrator. *He sees his role as encouraging* contacts where the prodding is needed but the semi-rural setting is usually enough for link academic and industrial minds to meet.

The university, having allotted all but about one hectare of the first half of the park, is expected shortly to proceed with the second half. Its more distilled approach to science parks is unlikely to change as it expands. The university is probably to undertake again the financing of the development itself.

Existing tenants include Edinburgh Instruments, one of the original occupants, the European research headquarters of Syntex, the pharmaceuticals group, and Fermintech, a biotechnology company.

Accommodation for companies varies between 1,000 to 80,000 square feet.

Mr Dalton reports that the park has created employment opportunities for students, and some have come back after getting some outside experience first.



Laser engineers monitoring the characteristics of a carbon monoxide gas laser at the Edinburgh Instruments plant. EI is now dominant in the manufacture of infra-red gas lasers and exports *70 per cent of them.*

Strong in the area of high-tech

IF CAMBRIDGE is the daddy of all the UK science parks, epitomising most closely the original ideas of the American founders of the concept, the twin northern parks associated with Leeds and Bradford universities offer a very different alternative.

In the place of Cambridge's spacious grounds, both occupy cramped spaces. The Leeds science park occupies one building which offers no chance of expansion; Bradford has five buildings and there is room to expand, but not to anywhere near the size of Cambridge.

At Leeds, it is possible to walk out of the front door of Springfield House and be in the university's senior common room in a minute. At Bradford, it will not take much longer. So the possibilities of university involvement are much greater than at Cambridge, though Bradford has taken a pragmatic approach, believing that not every tenant will necessarily want to be associated with the university.

In both universities, and similarly at Hull's Newlands Centre, the development has been undertaken by English Estates rather than by the university.

English Estates, a government body, is Europe's largest developer and has had experience of industrial property and industrial estates dating back to the mid-30s.

This is its first venture into the science park world and it has been careful to call both

Leeds & Bradford

ANTHONY MORETON

Springfield House in Leeds and Listerhills at Bradford "high-technology developments" although the layout and other facilities are those to be found on science parks.

English Estates is, in fact, the largest developer of science parks in the UK, with seven schemes under development. For it, a common theme has not merely been association with a university but also involvement with the local authority.

Springfield House sits within the shadow of the concrete brutalism of Leeds university, the largest civic university in *student* numbers in the country. It is a development of a Georgian house to which has been added two one-storey wings on either side in coloured glass.

The building, as in Bradford, *was completed* a year ago and the first tenants moved in immediately. Whereas Bradford is full and looking for expansion there have been problems letting Leeds.

This is not just a matter of *lack of interest in science parks* in either the city of the university or the difference in rents (approximately £3-£5 a sq ft in Leeds plus £1.20 service charges against £2.85-£3.35 plus 40p in Bradford) so much as surplus *capacity* in the Leeds property market.

Good property is difficult to let in Leeds, whereas it is difficult to find in Bradford and, perhaps surprisingly to an outsider, there is very little interflow between two of Yorkshire's premier cities despite the fact that they are only 10 miles apart and connected by an excellent dual-carriageway as well as the motorway.

Springfield House has nine tenants, accounting for around half the total space of 32,200 sq ft compared with the 18 tenants which fill the 42,000 sq ft of the first phase at Listerhills.

All the businesses at the moment in Leeds are in computing and electronics, two of which are from the University and three from within the city while two have come from the south.

The 18 businesses at Listerhills are predominantly in micro-electronics and computing, and three of them are from the university, but there are also a number of service companies and one is a small business that has crossed the Pennines from Rochdale.

Demand in Bradford has been sufficiently strong for a second *phase to be started in November* with an expected completion date next May. Phase one had 65 employees in its companies (whose combined turnover approaches £9m) when each started, and the figure is now up to 130. It is projected that by the end of next year the head count will have gone to 230.

Over in Hull, the most recent of the three, having only been launched this month, four tenants committed themselves *to the Newlands Centre* immediately and another three have intimated they will be taking space.

Newlands, again, is more along the lines of Bradford and Leeds rather than Cambridge and has 25,000 sq ft available at first, though there is room for expansion on the three-acre site.

English Estates is also associated with science park developments at Durham University, which should be ready in a year's time, as well as others in the north at Middlesbrough Bolton, Liverpool and Consett.

A marriage between town, county and industry

BY THE SIDE of the University of Warwick, which is on the southern edge of Coventry rather than in the ancient town of Warwick itself, there is a building that, from a distance, looks like the sort of building William Randoph Hearst would have put up in America's mid-west in imitation of a British baronial hall.

It is in fact a branch of Sainsbury, said to be the largest the group has in the country. A hundred yards down the road is the University's science park.

In their way, the three represent the best of modern Britain. Sainsbury, a leader *among the* companies that feed us; Warwick a leader among the universities that educate us; and the science park a leader among those areas catering for technology transfer that have blos*somed in the last three years.*

The science park at Warwick is a marriage between city (Coventry), university and counties (West Midlands, Warwickshire) with assistance from industry (Barclays Bank).

It is not Cambridge, with its open spaces and ample *land*, but neither is it Leeds, with its constricted space and single building on an inner-city site.

The Warwick science park, was lauched in 1981 with the aid of capital from Barclays. *It occupies* 24 acres and has three buildings on its space already.

The first, the Barclays Venture Building, funded to the tune of £1.2m by the bank, occupies 20,000 sq ft and has 17 occupants out of a possible 18. A second building, the Advanced Technology Centre, occupying 30,000 sq ft, has largely been taken by Sinclair Vehicles for its work on the electrical vehicle which is to be produced at Merthyr Tydfil in South Wales.

The third building is fully occupied by the Multiple Sclerosis Trust.

This is only the start, though, according to Mr Michael Shattock, registrar of the university. "We could put up buildings amounting to about 250,000 sq ft on the site," he says "and we certainly intend to expand.

"Barclays, pleased with the success of the first building, is already extending the Venture Centre and in the next 12 months we shall probably start 100,000 sq ft of space. We are also looking at the possibility of building a set of advanced technology units, each having four to six tenants under a single roof but each with its own front door."

The catchword about Warwick, as with many of the other British science parks, is flexibility—design, space, leasing terms, assistance from the university. In return, the companies get pleasant working conditions and full membership of all the university societies.

"Squash is a great favourite, of course," Mr Shattock says, "but we also have people in the music society for instance."

There are different motives for setting up science parks. Sometimes it is to do with

Warwick

ANTHONY MORETON

property, as in Guildford and Cambridge, sometimes to help technology industries.

In Warwick's case, there was little element of the former, a degree of the latter, but most important the park was seen as a contribution towards the economic life of the area.

The West Midlands has suffered badly in the recession, slipping almost to the point where it is a disadvantaged area. "The distinctive feature of Warwick," according to Mr Shattock, "is the relationship *between the university and the* local authorities, the relationship between academia and industrial life.

"The local authorities have backed us strongly and we have made it a condition to the firms proposing to come here that they must have a relationship with us.

"We are prepared to turn companies away if they do not want to enter into this commitment."

In practice, most of the companies have already forged links with the university and there is now a second-generation of approaches from companies which have discovered the science park's virtues and want to be associated both with it and the comapnies already on it.

The knowledge that the people working on the science park can be almost "full" members of the university has been a powerful factor in stimulating a corporate feeling, as a chat to any of the companies involved testifies.

So, too, does the fact that it is possible to walk across the campus into any of the university departments or laboratories.

The problem that the university has in promoting expansion is in finding the funding to put up new buildings. The companies which want to locate on the park are either too small to afford the money for their own buildings or, like potential American entrants, unwilling to invest in bricks and mortar.

Barclays' involvement in the incubator building was therefore a vital move in establishing *the park. But Warwick is faced* with the problem of finding £500,000 towards the infra*structure costs of developing* the remaining 14 acres, a high cost at a time when universities are *under severe financial* constraints.

British institutions have shown themselves to be remarkably loth to invest in interesting experiments and the Warwick science park is unlikely to offer an adequate financial return—certainly not one to allow for high infrastructure costs—within the next 20 years.

No assistance can be expected from this Government either. Warwick is, therefore, engaged in a desperate search to raise *further finance* for expansion.

Mr Shattock says that the science park is all about providing the sort of environment Coventry had 30 years ago. Then, the city had a lot of jobbing shops and was the workshop of Britain.

Much of that economic life has vanished with the recession as companies have gone out of business. Warwick would see it as a feather in its own cap if it could re-create those facilities and that atmosphere.

Such a creation will not occur, of course, on 24 acres next to the university. There are, however, industrial parks in Leamington and Kenilworth, to which growing businesses might move. In any event, the important thing is to act as a catalyst, a role the university would like very much to play.

Out to follow selective approach

The Mall at Aston Science Park, Birmingham, a turn-of-the-century warehouse refurbished by the city's architects department

Aston

ARTHUR SMITH

ASTON Science Park, set on a 22-acre site just off the motorway network but near the centre of Birmingham, is taking what some might regard as a high-risk policy. Only projects which genuinely need to be associated with a university—and Aston claims to be the UK's largest for technology—are likely to be accepted.

The backers of the park are the university, Birmingham City Council and Lloyds Bank. They believe the facilities offer sufficient advantages to opt for a selective approach.

In the first 18 months, 12 tenants have moved in to take about half of the 45,000 sq ft in the incubator units that mark the first phase. "Of course, we could have filled the space two or three times over had we been prepared to lower the requirements," says Mr Derek Harris, the park's finance director — a comment termed modest by local estate agents.

Mr Harris stresses that Aston is looking for young high-technology companies "that might otherwise be susceptible to failure in the cold outside world."

Indeed, while the policy might be restrictive in terms of technology and the contribution the university might make, there is flexibility elsewhere, particularly on finance, Mr Harris maintains.

Aston's venture capital fund of £2m has been contributed equally by the city council and Lloyds Bank. "There is a gap in the financing structure that we believe we can fill," Mr Harris says. "It is difficult to get the traditional forms of finance to invest in a start-up. We act as the pump-primer to get the project going before the company has established the necessary track record."

The science park, he says, is prepared to offer loans, equity or preference shares —"any kind of mixture that we think is appropriate."

A particular success among the first tenants is Aston Technology, a private company launched last September to assemble business microcomputers. The science park company put up £250,000 in return for a 26 per cent equity stake. Employment has risen from two to 24 and a trading profit is being returned on a company which in the first 12 months will enjoy a turnover of more than £1.5m.

Mr Graham Gough, managing director of Aston Technology, says one of the most important features of the science park is being able to call upon the university for specialist expertise when required.

Apart from the 350 or so academic staff who might act as consultants, the laboratories, and the expertise available in the management school, the science park itself offers, back-up facilities—everything from reception and catering to finance and marketing skills.

The present incubator units range in size from 1,000 to 10,000 sq ft. Construction will start this month of 20,000 sq ft of venture units, aimed at meeting the requirements of companies in the next stage of their development. Fast-growing Aston Technology would be an ideal candidate, for example.

Other parts of the site will be developed according to demand. "We have agreed in principle to build a specialised 25,000 sq ft unit for the high technology subsidiary of a well-known and established Midlands company," Mr Harris says.

In line with the selective policy, he adds: "They are looking forward to interfacing with the university on a number of new projects."

Aim is to speed up flow from academic area to industry

Manchester

PETER MARSH

A SCHEME to set up a science park in Manchester has broken new ground in attracting private-sector involvement in this kind of project.

Although the biggest shareholders in the company set up to run the park are Manchester City Council and Manchester University, four companies own a significant stake in the enterprise.

The four, all with a strong presence in the Manchester area, are Ciba Geigy, Ferranti, Fothergill and Harvey and Granada TV. The companies each own 7.5 per cent of the science park company. The university and the city council share the remaining 70 per cent.

According to Dr Derek Burr, the chief executive of the company running the science park, the main role of the four private groups is in providing general support and not simply that they are providing the scheme with cash.

For example, the companies could help out with specific technical problems or provide management expertise to tenants of the park.

Unknown quantity

The £1m required to develop the park so far has virtually all come from Manchester City Council some of it in the shape of funds allocated specifically to inner city developments from the Department of the Environment.

Exactly how the science park will operate is still very much an unknown quantity. Dr Burr is not ready to name any tenants, though he says he is talking to a number of prospective companies.

This November the first tenant should move into the accommodation, which provides a total of 24,000 sq ft of space on land in central Manchester close to the site of the university. The land is owned by the city council.

In the initial phase of the scheme, builders are erecting office and laboratory units on just two acres of a 16-acre plot. The rest of the land could be developed in later stages of the project.

Dr Burr expects about four companies will take up places by early next year. About 12 companies will be required to fill the first phase of the science park.

A metallurgist who previously worked in a management post with Inco the nickel producer, Dr Burr expects that only a few of the tenants will be new companies. Most, he thinks, will be one year to 18 months old.

More than half the companies which have inquired about taking up space in the park already have strong links with either the university, the city's polytechnic or the University of Manchester Institute of Science and Technology (all of which are close to each other in the central area of the city).

For example, the enterprises may have been started by academics or have research contracts with technology departments in the academic institutions.

Another group of companies that have expressed interest in the park comprises, says Dr Burr, concerns that have calculated they will prosper through cementing links with academic departments. He hopes that the proximity of the institutions will encourage informal connections.

For example, engineers will be able to stroll across from the science park to discuss ideas for new products with people in academic laboratories. In such a way, the companies on the science park will provide a commercial outlet, so Dr Burr hopes, for technologies developed by researchers.

Dr Burr will not accept companies that simply want to use the science park as just another industrial estate. "All of our companies will be using the technologies or the resources of the adjacent academic institutions. We plan to use the site to accelerate the growth of technology from the academic area into industry."

A hustler in the technopark

South Bank

PETER MARSH

THE LANDLORDS of an innovation centre for small technology-based companies in London will apply a deliberate policy of turfing out their tenants after a few years.

It is not an example of ruthless Rachmanism applied to small enterprise. It is just that the operators of the South Bank Technopark, in Southwark, South London, expect their tenants to grow quickly and move on to bigger premises.

Mr Jeffe Jeffers, the park's project director, says he will be seriously worried if companies that rent space when the park opens next summer are still there after about four years.

The central aim of the technopark, backed by South Bank Polytechnic and Prudential Assurance, is "to keep good-quality industry in the inner city," says Mr Jeffers. According to this theory, companies that start off in the park will create employment in the area through fast growth.

The South Bank project is unlike most science parks. It will comprise not a collection of buildings spread out over an estate, but a three-storey building now being constructed on a cramped site next to the polytechnic.

It is taking shape in a location that is hardly inspiring from an architectural or environmental viewpoint—next to the busy Elephant and Castle road junction.

Building work should finish next April and Mr Jeffers expects the 50,000 sq ft of accommodation to be fully let by September.

If all goes well, about 50 companies will have premises in the centre, offering jobs for 250-350 people. No company has so far firmly agreed to take space. But, as Mr Jeffers says, the companies that he is trying to attract are still in the early stages of development.

Happy to wait

"If a company signed an agreement with us now and was happy to wait around for us to finish the building, then I would think there was something seriously wrong with its business plan," he adds.

Mr Jeffers, who describes himself as a "hustler," has been involved in the planning of the technopark for several years. He set up a company, Science Parks, to act as a consultant on the project. Before that he was a steel salesman and set up community projects and job-creation schemes in South London.

South Bank Polytechnic has put up about £50,000 to fund studies on the technopark. It sees the project as a way to improve ties with industry and to provide a commercial outlet for technologies developed by academic researchers.

Mr Jeffers's biggest coup was to persuade Prudential Assurance to fund the scheme with £4.5m. If the first phase proves a success, the insurance company could put up a further £1.5m to fund the construction of a further 30,000 sq ft of accommodation.

Three types of enterprise will take up most of the space in the centre, Mr Jeffers believes. The first group will comprise small, newly-formed companies in fields such as electronics, medical equipment and satellite imaging.

A second type of enterprise will be subsidiaries of large companies that work in specialist areas of technology. Finally, medium-sized computer companies may be attracted because of the links with the research facilities afforded by the polytechnic.

The physical proximity between the technopark and the polytechnic are likely to be important. The polytechnic already has links with many established industrial groups, though it is less used to working with small companies.

Tenants will be encouraged to make use of staff and equipment at the academic institution to produce prototypes of products, for example.

The management of the park will also try to bring together in joint research projects, academic workers and companies that have taken space in the park.

The park will attempt to serve people who prefer the conveniences of Inner London to the more rural locations which are the base for many high technology companies, says Mr Jeffers.

Originally opposed

"People who set up new companies in technology tend to be young," he says. "When they finish work at 10 pm they don't want to drive miles down the M4. They want to go up to Covent Garden and have a curry."

But the project has not always been favoured by Southwark Borough Council, the local authority for the area. Southwark originally opposed the scheme on the grounds that it wanted to build houses on the site. It was also doubtful whether "high technology" companies could create jobs.

After a public inquiry the scheme received the go-ahead and after its initial misgivings Southwark Council has agreed to provide a representative on the park's board of management. Other members will include representatives of the British Technology Group and the Greater London Enterprise Board.

Lorne Barling looks at other university developments

Contenders set out their stalls

Nottingham

Highfields Science Park is being developed adjacent to Nottingham University on a ten-acre site (with a further 2 acres of university land available) almost entirely by the city council.

The council has spent around £250,000 on the infrastructure and will spend another £1m on the 31,000 sq ft of space now nearing completion. A total of 16 units are available and tenants will preferably form close links with the university. However, this is not a firm requirement.

Contacts: Tony Edwards, Department of Technical Services, Lawrence House, Clarendon St., Nottingham. John Webb, Science Park Liaison Officer, Nottingham University.

Southampton

Development work on the science park has now started on a site at Chilworth Manor, which is about five miles from the campus to the north of the city. It is a university-owned green field site, being developed by Chilworth Centre.

Work on the buildings is expected to start before the end of the year, and three tenants made commitments. Funding is at present under negotiation with the local authority. Work on the site will be research oriented, with some small batch production and development of prototypes.

Contact: Mr John Stuart-Buttle, Chilworth Centre, Southampton University, Southampton.

Birmingham

The University of Birmingham has announced plans for an institute of research and development, to be located on a four-acre site between the campus and the Queen Elizabeth teaching hospital, which is also involved with the research work.

The city council is to fund the infrastructure work and talks with banks are also taking place.

The first buildings are expected to be completed by late 1986, but temporary accommodation on the campus is already being used. The park will feature strong departments of science and engineering, together with important medical research.

Contact: Prof John Samuels, University of Birmingham, PO Box 363, Birmingham 15.

Brunel

The Brunel University science park, planned for an area of the campus at Uxbridge, Middlesex, is in the early stages of development, with its opening planned for the end of next year. However, inquiries from companies have been received and leases are under negotiation.

Discussions on funding are now taking place, and external sources are being sought, but it is planned that the university will build premises and lease them to companies.

Contact: Mr Peter Russell, science park co-ordinator, Brunel University, Uxbridge, Middlesex.

Surrey

A research park is being constructed on the 70-acre Manor Farm site owned by Surrey University at Guildford. The first contracts have been let and work is due to start in the near future.

Two companies have given details of plans to build premises on the site, and overall funding will be mainly through companies themselves, although the scheme is also supported by the university, which has strong science and engineering departments.

Contact: Dr Malcolm Parry, Surrey Research Park, Manor Farm, Guildford.

Loughborough

Loughborough Technology Centre has been built on the Leicestershire campus of Loughborough University of Technology, the College of Art and Design and the Technical College. It provides 25,000 sq ft of space on two floors.

The building was completed in April this year and a total of ten companies have taken space; each having first to demonstrate that it would make use of the academic or physical resources on site.

Loughborough is known as a major centre of excellence in a range of technologies, and the centre has been funded by the county council.

Contact: Mr R. D. Say or Mrs E. Carter, County Hall, Leicester. Tel No Leicester 871313, ext 7251.

Swansea

A regional innovation centre is planned for the University College of Swansea, covering the relatively small area of one-third of an acre on the Singleton Park site, adjacent to engineering buildings.

A 30,000 sq ft building has been funded by the Welsh Development Agency and tenants will be expected to be closely integrated with the work of the university departments. The Biotechnology Centre of Wales [illegible] the building. Strengths of the university include biotechnology, chemical and bio-chemical engineering and micro-electronics.

Contact: Dr Gwynn Morris, Industrial Liaison Officer, Applied Science Building, University College of Swansea, Singleton Park, Swansea.

York

The University of York has long-term plans for a science park, which will probably be on 10 acres of its campus, but this will depend on demand.

The park is not expected to begin operating until the late 1980s and no direct action has yet been taken in relation to the funding of the project. Strengths of the university include electronics, biology and computer software.

Contact: Mr Frank Unsworthy, Director of External Relations, University of York.

Keele

The University of Keele is developing a science park on 19 acres of land on its own campus, and intends to have the first buildings complete by Easter next year. Close links with the university are envisaged for tenant companies.

A limited company, Keele Science Park, has been formed to operate the park, and funds are being sought from banks and other institutions. Keele covers a wide range of subjects, and imposes broad disciplines, which are thought to be an advantage to industry.

Contact: Dr. Hugh Roberts, Industrial Liaison Officer, University of Keele, Keele, Staffs.

Trinity's faith rewarded by rapid growth

Cambridge

ANTHONY MORETON

IT IS NOW 11 years since Laser-Scan Laboratories moved in to the Cambridge Science Park, the first company to do so.

Founded four years earlier by three researchers from the Cavendish Physics Laboratory in Cambridge to make systems using computer-controlled laser deflection techniques, the company could have been excused if it felt lonely on the site at first even though it is only two miles from the centre of Cambridge and Trinity College, on whose land the park has been developed and to whom much of the credit for its success must go.

However, within a year it was joined by LKB Biochrom and in 1975 Cambridge Communications and Goodfellow Metals arrived. Even so, by the end of the 1970s there were still only 13 in situ but if they ever questioned the wisdom of the move Trinity itself never did.

Dr John Bradfield, senior bursar of the college, and the man to whom everyone on the park withous exception attributes its success, says: "We always had faith that the park would succeed and this year that faith has been amply rewarded."

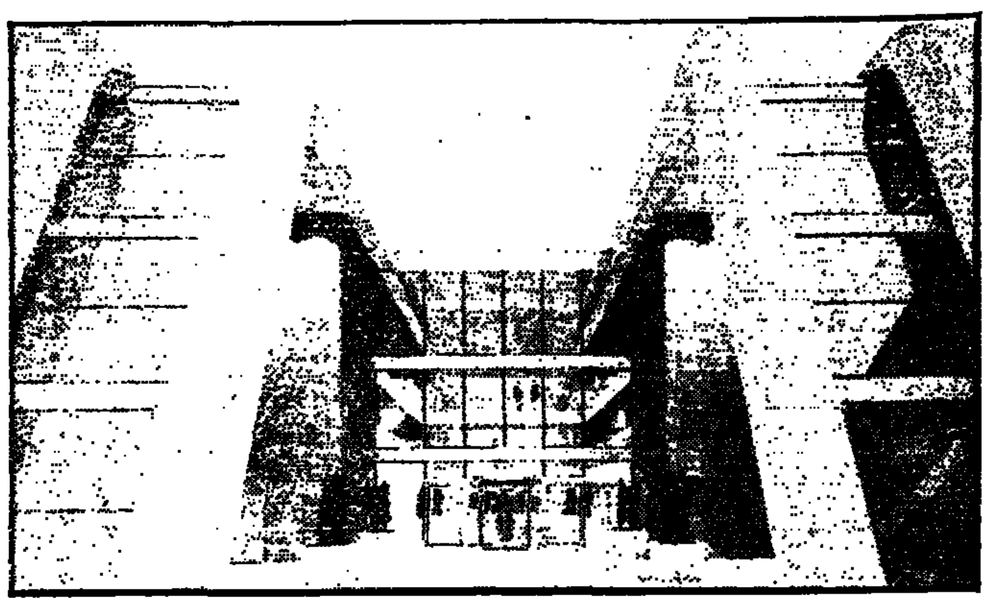
So far this year 16 companies have moved to the park, taking the total to 39. With the opening of the Trinity Centre a week ago one of the original aims of the founders, that there should be a common room for a meeting place for those working on the park, has come to fruition.

Meeting rooms

The centre is particularly important for the smaller company, which might not have the space to hold meetings with outside visitors. In addition to its common room and bar, appropriately named Henry's after Henry VIII, Trinity's founder, there are two meeting rooms, Newton and Rutherford, named after two famous sons of the college from very different eras.

Both Laser-Scan and LKB have grown strongly since their arrival, Laser-Scan now employing 97 and LKB 94. Both are dwarfed in numbers and space occupied by Napp Laboratories, British affiliate of an American concern, which produces ethical pharmaceuticals.

Napp, set up by two brothers, Dr Raymond and Dr Mortimer Sackler, in the U.S. 30 years ago took the whole of the 28 acres of the second phase of development of the park, and so on its own occupies a space equal to that provided by perhaps half-a-dozen science parks founded by other British universities.



Front entrance to Napp Laboratories on the Cambridge Science Park

Housed in what must be the most imaginatively and attractively designed industrial building in Britain, costing £20m to put up, Napp now employs 250 on the site, which it expects to increase to 300 by the end of the year, and another 100 outside Cambridge.

Phase I of the park was completed by November, 1982, and has been filled. With Napp occupying Phase II much progress has been made in filling the 26 acres of Phase III. ICFC has put up 17 starter units, all of which have been spoken for, and such is the explosive growth that the park is experiencing that work is starting on six more starter units, three of which are also committed.

Firm agreements

With few vacant sites on Phase III Trinity received planning permission for development on the 28 acres of Phase IV in June and if (or when) this is filled it still has further land in reserve for additional expansion.

The importance of the Cambridge Science Park is that it can cater for the small as well as the larger company. Trinity's £5m investment has been put into units from as small as 800 sq ft.

Rhombus Systems, founded this year, has a staff of just two and while it is hoped that companies will grow and move to larger premises as Laser-Scan itself did, some remain small. Cambridge Micro Computers, which moved into the park in 1979, remains micro, with a staff of seven.

Internationally, the park has attracted 11 companies with overseas parentage and, because of the strength in numbers of Napp, these account for 41 per cent of the 1,316 employees in the park and 46 per cent of the 370,000 sq ft of space let.

Broken down by product type, the largest group — 13 — is in what Dr Bradfield describes as "other electronic engineering." There are 10 computer hardware and software concerns and nine in the biochemical and medical field.

The park has also attracted six service companies, such as Gill Jennings and Every, a firm of chartered patent agents and European patent attorneys, and IBM's Academic Systems Marketing, which came to the park specifically to liaise with the university computing service.

Trinity is actually stepping up its commitment towards the park as the development continues. Last year it put up £20,000 to fund part of the salaries of three people who would work part-time in the university and part-time in companies.

The three are with Cambridge Consultants, working on robotics, Cambridge Life Sciences, working on biosensors, and Cambridge Robotics, working on means of improving manufacturing data bases.

The college is now to devote another £50,000 a year for six years towards the employment of half-a-dozen or so researchers. It is hoped that a start might be made in the academic year just about to start.

"The concept of the Cambridge Science Park is becoming ever more exciting as the number and variety of occupiers grows and its original aims are being realised," Dr Bradfield says, with no little understatement.

Co-operation plays a key role

The users

ANTHONY MORETON

"THE DECISION to come to the Cambridge Science Park has fulfilled all our requirements. We could not have found a better site in a better part of the country to suit our needs. The quality of the staff is excellent and it goes without saying that the quality of the university is as good as you can get anywhere."

So said Mr Paul Manners, managing director of the Napp Pharmaceuticals Group, commenting on the decision of the company to relocate from scattered sites in Aberdeen, West Drayton and Watford onto the Cambridge Science park.

Napp, with 250 workers on the park and a further 50 to come in an expansion programme, is by far the largest company in terms of employees on any British science park.

Mr Manners finds there is a lot of co-operation among the companies on the park. "We circulate a list of equipment we have and we get information from others, so that we can interchange.

Devices sold

"There is also close involvement with the university. We invited a number of professors in our field to come and see us and as a result we have had tremendous co-operation with their departments.

"We have three firm agreements with university departments to work together and these have proved to me that neither the university nor the academics see industry as a dirty place, a place to be avoided.

"As a result of this co-operation we are funding a research student in one department. It is very rewarding being here, very constructive indeed."

Mr Manners' comments are echoed by other companies on other science parks. Industrialists on several science parks had nothing but praise for the way in which university people co-operated with them and made facilities within the university available.

Not one regretted the move onto a science park even though the cost involved, in renting new premises for instance, was usually considerably higher than in the *previous location.*

At Warwick, for instance, Mr Ian Smith, of Warwick Computer Designs, said he hoped to get even closer to the engineering department. "I am more than pleased we have come to this site. People like working here and we have had a lot of help from the university, much more than I thought we would get when we first came."

Next door, Mr Peter Starmer, director of Automatix, an American-based robotic systems company, commented that one of the attractions had been the flexibility of the park. "We could get starter leases which did not hold us down to the standard 25 years or whatever that commercial companies insist on,

English Estates' high technology units at Listerhills, Bradford University, where the first phase of 42,000 sq ft is now fully let or reserved

Mr Paul Manners, managing director of Napp Laboratories: the largest company on any US science park

with their break clauses, repairing leases and all that.

"Here, if we had wanted it, we could have come on a monthly tenancy and traded up at a convenient time.

"Coming here has worked beyond our expectations. Furthermore, it motivates us seeing the place expand and other companies, with which we can exchange ideas, come in.

"When we first came we found we wanted a particular conveyor belt. To have designed it and got it made in industry would have taken months, but the university produced it for us in 10 days. I think that shows the sort of commitment the university has to us and the close co-operation between us."

Further north, the reaction was equally enthusiastic. Mr David Butland, of Bradford University Software Services, on the Listerhills high technology development at Bradford, found the university's attitude "first rate."

Mr Frank Jones, of Business Information Techniques, an "intelligent" office information systems company, commented there was "no thought originally of coming to a science park. We had been thinking of expansion because we were in the Wool Exchange and that was not suitable for the work we do.

"We are a high security company, working on government jobs, and would not have been able to continue with that work without a building that offered us that security. This building is excellent."

Mr Chris Stephenson, of Systech, admitted that "coming was a gamble. We could not really afford it and we have not really built up any relations with the university. As a con*sultancy we have to be,* in a way, a step ahead of the university. There tends to be no leading edge in our area and it is a problem that we cannot use the university.

"One of our clients, however, said that the science park presented the sort of image they expected in their consultants and I doubt if we would have kept the contract with them had we not moved here. The pleasant environment is right and we can attract the right staff to it."

Over at Hull University, on the Newlands Centre, two academics, Dr Eric Thomas and Professor John Bryant, set up Laser Monitoring Systems because of the lack of money for their research within the university.

"We started selling some of the devices which are made and Newlands made great sense," Dr Thomas says. "We now have two full-time staff and six part-time, but we envisage having 10 to 12 full-timers within three years. This is one way of keeping important work going in this country."

The last word must go to Alastair Graham Bryce, of Inbucon, at Warwick. "There *is spectacular knowledge in* depth in a university and we have made use of it, especially in engineering. But links between the two sides will not just happen.

"Positive effort has to be made because we operate in different ways. There is real synergy between the two sides and with the right attitude there can be enormous benefits from setting up and from operating on a science park."

Winning concept reaches maturity

United States

ANTHONY MORETON

TWO YOUNG graduates by the names of Hewlett and Packard, whose company bearing their combined names is now world famous, started the whole science park movement in the Fifties when they began manufacturing on the Stanford University campus in California.

American universities quickly took up the idea and within 20 years there were science parks associated with nearly 100 universities as well as a lot of high-technology parks elsewhere.

American experience quickly showed that science parks by themselves provide no guarantee of success for their occupants. A lot of brilliant ideas allied to a lot of brilliant young men do not necessarily lead to a lot of brilliant companies.

For every Hewlett Packard there are failures, some because the processes being developed never really leave the drawing board, some because the finance is not right, others because the originators cannot manage.

At the big Stanford Park, for instance, which covers 600 acres (a size almost as large as the City of London), the number of companies is now thought to be around 50—well below the peak of 95—and the park is considered to have "matured."

The effect of the park has been to spawn an enormous interest in high technology companies all the way down to San Jose as well as to attract major names such as Kodak and the American General Electric Company.

If Stanford has "matured" it is equally true that there has been a recent resurgence in science parks in the U.S. Stimulated by democratic thinking on the role of industry a lot of states have formulated their own industrial policies which have included a slot for science park developments.

American state universities, such as Ohio, Maryland and Wisconsin, have the money to undertake these developments and the parks have been built with a strong property content, such as shopping malls and plazas, theatres and swimming pools. The universities tend to see such capital investments very much as a technology-property marriage.

These developments, unlike the earlier waves, are top-down approaches. The first science parks started with entrepreneurial academics; they have been replaced by academic bureaucrats who want to create parks. Bureaucrats are today looking for big capital investments on big sites, a different conception to *what is happening in the UK.*

The science park movement is not limited to the U.S. and the UK. There are considerable developments in Europe, with Holland taking a leading role.

TECHNOLOGY

EDITED BY ALAN CANE

COLLABORATION TO SPEED RESEARCH ON GALLIUM ARSENIDE

Deeper glances into the dark crystal

BY DAVID FISHLOCK, SCIENCE EDITOR

THREE British electronics groups are planning a £30m research collaboration to develop integrated circuits made from gallium arsenide.

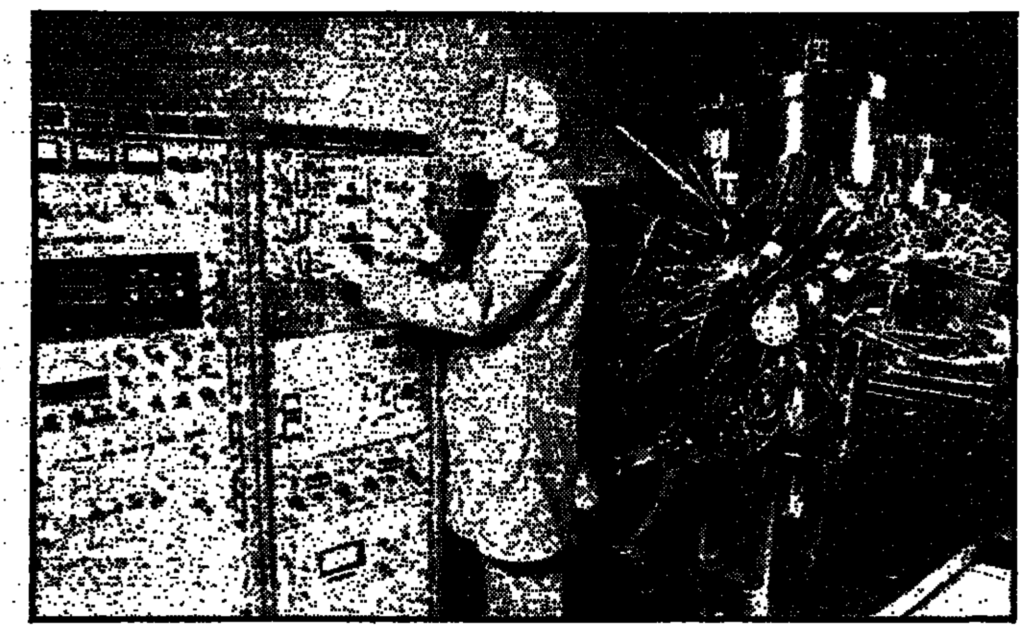
This material will replace silicon for some applications including high speed computers and military equipment. The General Electric Company, Plessey, and Standard Telephones and Cables hope that the research programme will be funded jointly by industry and the Government over the next three to five years.

The idea is to bring British expertise in gallium arsenide technology up to that of Japan and the U.S. These countries have spent heavily on research programmes with announcements of new processes and circuits appearing regularly. Much of the funds have come from Japan's fifth generation project and the U.S. for the development of advanced electronic circuits.

The UK companies believe that they can catch up with Japan and the U.S. Gallium arsenide is not a new material. It was first recognised about 30 years ago that by mixing the elements from group III and group V of the Periodic Table of the 92 elements in natures, compounds with interesting semiconducting properties could be made. Such a compound is gallium arsenide, a fragile metal-like crystal.

But compared with silicon—a single metal-like element—the compound semiconductors of two or more elements proved tricky, intransigent materials to work with. Some are so brittle the crystal must be made under pressure, to prevent it crumbling apart. By the mid-1950s it was clear that silicon was going to supplant germanium, the material of the original transistor in 1947, as the "mild steel" of the semiconductor industry. Compound semiconductors might find a niche later, when the scientists knew much more about their idiosyncrasies.

By the mid-1960s, Standard Telecommunications Laboratories at Harlow and Ministry of Defence scientists were beginning to master the properties of gallium arsenide. It looked as if it might be good for frequencies far higher than silicon can handle; a material that might help to bridge electronic and visual technologies—opto-electronics.



Hirst laboratories' molecular beam epitaxy apparatus

The first demonstrations of compound semiconductors were semiconductor lasers and light-emitting diodes, the pinpoints of brilliant light that began to appear on electronic watches in the 1970s.

A lot of the early research on gallium arsenide in Britain was, in fact, done under a collaborative research effort organised by the Ministry of Defence, embracing such centres as the Royal Signals and Radar Establishment, Malvern, and the laboratories of GEC, Marconi, Plessey and STC. Defence interest in gallium arsenide includes its promise for better radars and satellite communications, and its greater "hardness" than silicon to the electromagnetic pulse (EMP) or instantaneous flash of radiation that accompanies a nuclear explosion, which can knock out unprotected electronic circuits.

But opto-electronics, marrying electronic circuits with optical device — such as glass fibres that carry immense amounts of information, or with inexpensive flat-panel displays, is seen as the future of civil no less than military systems. Long-term, the aim in opto-electronics is to manipulate light electronically — which is a difficult challenge because photons (light particles) carry no electrical charge.

The kind of frustration that confronts the electronic engineer today is that he can transmit a TV picture as photons down a glass fibre for hundreds of miles, but in order to recreate his picture he must turn photons into electrons, manipulate them electronically, then turn them back into photons so that we can see the picture.

Novel opto-electronic materials will eventually provide the answer. Gallium arsenide, operating at much higher frequencies than silicon—up to optical frequencies, in fact—helps to bridge the gap to yet-undiscovered materials of the future.

Britain fumbled its chances to take a major initiative in silicon technology in the 1970s, of the kind that has given the Japanese a clear lead in mass-production of very big chips such as 256k Rams, says Dr Danny McCaughan, assistant director responsible for GEC's new £3m research facility for gallium arsenide at Wembley.

Prof Derek Roberts, GEC's technical director, admits that GEC itself has failed with two attempts at bilateral industrial collaboration in semiconductors. The first, in the 1950s, was with Mullard in a joint venture called Associated Semiconductors. It broke up in the 1960s, with most of the talent heading for Mullard and Philips. The second, just before Prof Roberts's arrival at GEC, was the abortive joint venture with Fairchild, which ended when Fairchild itself was bought by a group that wanted no link with GEC.

But in Marconi Electronic Devices Ltd (MEDL), he claims, GEC today has a semiconductor operation which, if small by international standards, is one of the fastest-growing. MEDL and English Electric Valve will be the recipients of GEC's gallium arsenide research.

The scientist himself is learning to use new tools such as molecular beam epitaxy, with which he can create, atom-by-atom, novel materials with remarkable properties, by laying down sandwiches of different semiconductors in layers only a few atoms thick. The technique is revealing a new kind of physics, they say.

From this new physics they hope may emerge those elusive opto-electronic materials which will allow them to manipulate light as easily as silicon chips can manipulate electrons.

Terminals

Portable and compatible

A MIDLANDS based computer company has launched a range of portable terminals which are compatible with the IBM 3270 range of terminals. Informer Computer Terminals weighing 14 lbs which are compatible with both IBM and Digital Equipment ranges.

The latest machines have a 9 inch screen, detachable flop down keyboard and the option to include a modem for communications down the telephone line. More details from the company in Birmingham on 021 455 6666.

Datacomms

Satellite network

THE FEDERAL Express Corporation in the U.S. is to build a satellite based data communications network for its ZapMail document transmission and electronic mail service. The first phase of the satellite network will be operating by July next year.

It will be constructed by Harris Corporation of Melbourne, Florida and Tandem Computers in Cupertino, California. The satellite network will replace terrestial circuits between 16 U.S. cities.

Peripherals

High speed line printer

MANNESMANN Tally has produced a line printer for high speed continuous operation. The MT600 can produce high quality word processing text business graphics, linear charts, logos and special symbols as well as bargraphs.

It prints at a speed of 600 lines a minute and has a 96 character set. The MT600 costs £6,000 and more details are available from Mannesmann Tally in Wokingham, Berkshire on 0734 788711

ELECTRONIC BANKING

Swift moves to decentralisation

BY SIOBHAN HANEY IN BARCELONA

NEW TECHNOLOGY for Swift, the banks' 11-year-old world-wide messaging system, is expected to be phased in progressively between 1985 and 1987.

The existing system is "old technology" centralised and using "store and forward" techniques. It is now close to capacity at 500,000 financial transactions every day.

Swift II will be based on a decentralised network architecture. It will use a transaction processing approach enabling the member and user banks to incorporate a variety of processing and application functions for national or regional services, provide greater flexibility in bank processing operations and substantially increase overall systems capacity.

The likely shape of the new Swift emerged last month at the organisation's seventh annual Sibos conference, held in Barcelona, Spain.

Among other hot issues were the question or whether "non-bank" financial institutions should be allowed on the network with new services for users.

The structure of Swift II calls for at least two system control centres which will perform overall control and monitoring functions for the system, provide archiving and interface support to member banks. Transaction processing computers responsible for the validation, queuing and storage of incoming transactions prior to initiating delivery through the system, will be located where convenient in the network.

SWIFT II's 1,200 member banks in 15 countries will be interconnected through two network levels using leased lines and public networks. Transmission speeds will be from 9,600 bits a second upwards.

For some time the issue of allowing non-bank financial institutions onto SWIFT has been controversial. Last April, the members of SWIFT voted against the participation of stockbrokers. Discussions are, however, expected to start again soon.

The banks accept that allowing other financial institutions onto the network could make for quicker, more efficient services for the customer as the line separating banks and non-banks becomes less defined, but they are worried that the non-banks may end up running SWIFT to their own advantage.

There is nothing to stop the non-banks establishing their own, comparable network — but the investment required would be very large.

CEDEL (an international clearing system for securities designed to provide a solution to Eurobond market settlement problems which evolved in the 1960s) was allowed onto SWIFT in 1981 and Euroclear (a comparable international securities clearing system) in 1982. The idea was to extend activity in the securities transactions sector. To assist further integration of these two systems, SWIFT has announced 15 new message types for securities.

SWIFT competes directly in interbank communications with third party networks such as those managed by the computer services firms Geisco and ADP which many banks use for cash management services.

Suggestions that SWIFT should allow these systems to interface with its own network seem unlikely to be taken up although many bankers seem to be in favour. Mr Geoffrey Jones, manager for electronic banking at Midland Bank told the conference: "The use of SWIFT to deliver messages directly to the third party cash management services supplier instead of delivering to another bank which would then have to re-input the data, is a golden opportunity to keep costs down, thereby helping to keep up the rate of return that can be earned and helping to promote a healthy market."

Surveying

Distance meter

A COMPACT and "intelligent" distance measuring meter for surveyors has been introduced by Geotronics (UK) of Huntingdon, Cambridgeshire.

Called Micro EDM, the new system measures only 175 x 90 x 110 mm and weighs 1.3kg. It has a built-in microcomputer which works out and displays measurement results in fractions of a second. The computation of horizontal distance, arithmetic average and other survey quantities is automatic and does not involve a keyboard.

Hundreds of values from a day's field work can be entered and stored.

The infrared beam used to make the measurements can also be employed as a carrier for speech transmission between the instrument and the measured position, with a range of up to 1,600 metres. More on 0487 842282.

Computing

Share registration

RTZ Computer Services is offering an on-line share registration system which could be of interest to companies with a register of 30,000 accounts or more, and to firms specialising in share registration.

Developed for use on the Digital Equipment PDP-11 minicomputers, the system allows users to define the parameters of every single register held. Registers of companies with very different share profiles can co-exist independently and be processed on the same computer.

Since the system is on-line, registrars have immediate screen and keyboard access to the current position of any shareholding. Transactions are updated within seconds of being entered.

Milk: the dilemma of new ground rules

Andrew Gowers explains why the MMB must re-think its strategy

"THIS IS the first time since anyone can remember that we face contraction." With those words, a senior executive with the Milk Marketing Board sums up the traumatic changes confronting the English and Welsh dairy monopoly as a result of EEC milk production curbs.

The quota controls introduced in April, under which Britain must cut back overall milk output this marketing year by 6½ per cent, do not signify just a momentary setback for the Board, they amount to a reversal of the whole philosophy on which it has based its development over the past half-century.

In particular, they cast a cruel light on the other big milestones in the Board's recent history, its acquisition of 16 butter- and cheese-making creameries from Unigate in 1979 and its subsequent investment of tens of millions of pounds in modernising their antiquated plant.

Ever since it was created in 1933, and particularly since Britain's entry to the European Community in 1973 began to close off the country's traditional external sources of cheap dairy products—such as Australia, New Zealand, Poland and Finland—the MMB has been making strenuous efforts to boost domestic output of milk.

As consumption of the basic product — known to those in the industry, somewhat tautologously, as "liquid milk" —has been declining at an annual rate of about 2 per cent for the past 10 years, that meant simultaneously finding or creating bulk manufacturing outlets.

The board had no need to worry then about finding a market for its mass-produced butter and skimmed milk powder; the EEC was obliged to purchase surpluses to market requirements—known as buying into intervention—creating in the process the notorious butter mountain.

Between 1974 and 1983, total sales of milk off farms in England and Wales rose by nearly 23 per cent, from just over 11bn litres to 13.66bn. In the same period, the proportion of total output which has gone to creameries to make dairy products has risen from 38 per cent to 55.

In a sense, the need to find outlets for an ever-increasing supply of milk has been an albatross around the Milk Board's neck. At no time was this more true than in the late 1970s, when Unigate—hitherto one of the MMB's main customers—decided to get out of the unprofitable business of manufacturing dairy products in bulk.

Either a buyer would be found for its creameries or the company would simply be forced to close them. The prospect that so large a part of its market might vanish overnight was truly terrifying for the MMB. So, swallowing its reservations, the Board stumped up £55m for the 16 factories and embarked on a £100m-plus programme to make them more efficient. "After all, you have to convert all that milk into something," as one Board employee puts it.

The purchase and subsequent spending seemed to make reasonable sense while milk production was booming.

With the imposition of production quotas, aimed precisely at reducing the costs of the Community's butter mountain, that logic looks a lot more questionable.

Borne the brunt

As the board's first priority remains supplying the large and lucrative liquid milk market, the creameries have borne the brunt of the quota cutbacks. Dairy Crest, the Board's manufacturing arm, now finds that it simply cannot get hold of enough milk to keep its total of 30 creameries operating at full tilt.

In July, for example, the supply of milk for manufacture was more than 25 per cent down on the same month last year. As a result, Dairy Crest is mothballing old capacity and seeking to shed more than 400 permanent and temporary workers; the unions, which are fighting the prospect of compulsory redundancies, fear more jobs may have to be axed later.

Michael Bessey, Dairy Crest's managing director, is putting a brave face on the changes brought about by quotas. "We've had to spend a lot of time and capital on production-led growth up to now," he says. "We've been driven by the feeling that there's a tide of milk we've got to dispose of somewhere. Now we can concentrate on more conventional profit criteria."

From the point of view of his colleagues in the board itself, things don't look quite that simple. For one thing, the cut in milk production has meant a sharp increase in unit costs.

The cost of milk collection from farms, the MMB's largest bill at about £88m this year, is unlikely to drop with the fall in milk output, and as a result transport costs per litre will jump.

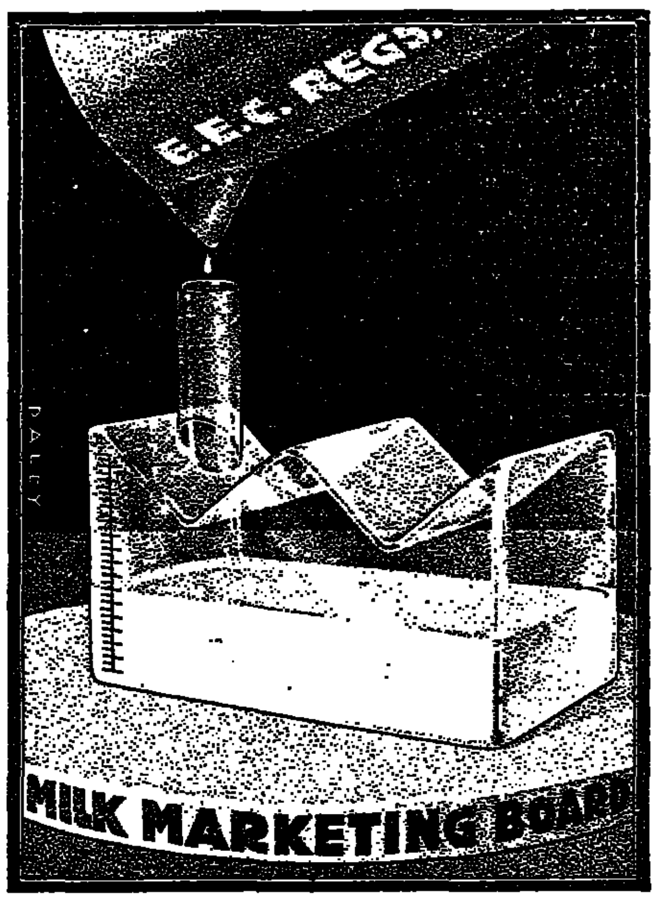
The scope for cost-cutting in such an operation is strictly limited. So the squeeze on margins caused by the milk production cuts is forcing the board to look with new urgency for ways of boosting its revenue. In the process, according to Detta O'Cathain, the board's lively new director and general manager of milk marketing, it may be evolving into more of a marketing organisation in the strict sense of the phrase.

The board's main priority in the long term must be to reduce its dependence on the bottom end of the dairy market, bulk butter and low-quality Cheddar cheese, and concentrate on higher added-value products.

Dairy Crest's much-heralded Lymeswold cheese was one symptom of this phenomenon; other new items including a Camembert-like cheese and a soft butter product are in the pipeline for a national launch, and the board is also trying to whip up enthusiasm for independently-produced foods which use a lot of milk, such as full-cream ice-cream.

Whether it succeeds depends on a whole host of imponderables, not least of which is the growing public awareness of issues relating to food and health. Mounting concern over heart disease was among the reasons for a 39 per cent drop in UK per capita butter consumption between 1970 and 1982.

If large numbers of consumers turn away from dairy products in general—cited in a recent Government-sponsored report on fat in food—the industry will have little hope of halting the decline initiated by milk quotas.



The MMB and the EEC

THE UK's five milk marketing boards are organisations unique in Europe, and the (the others are Northern Ireland and three for Scotland) is the most peculiar of them all.

Where most other EEC countries organise their dairy farmers into co-operatives that are voluntary at least in name, the Board is statutory and all 39,000 dairy producers in England and Wales have to belong.

It is run by an elected board of 18 members, including 15 farmers, employs a total staff of around 13,000, and has a near-complete monopoly over the channelling of milk from producers

The MMB's peculiarity lies in the fact that the European Community does not usually allow the existence of such "national" organisations. And despite a special EEC dispensation, awarded at British insistence in 1978, the Board has long been the object of deep suspicion in Brussels and some other Common Market capitals for its monopoly status,

For example, the board has always obtained a much higher price for liquid milk than for sales to creameries for manufacture, reflecting the British farmer's traditional reliance on the liquid milk market for the bulk of his income. This has led to allegations that the MMB unfairly subsidises the manufacture of butter and cheese in the UK by pricing its milk too low.

In particular, the board has come under fire for discriminating in price between sales of milk for intervention butter and packet butter. Under heavy pressure from the UK Government, it ended this practice earlier this year, but as things stand it is still the object of litigation in the European Court.

In the 1983-84 marketing year, more than one third of all milk produce in England and Wales was handled by the board's own creameries and dairies.

This gives the organisation two conflicting interests: as the representative of producers, it must seek the best possible return for their milk; as major manufacturer of cheese and butter, it must try and obtain milk at the lowest possible price.

Shopping malls

Hyper-active in the U.S.

THE BRAZEN, 1950s-style, electric signs advertising the covered shopping centre and its stores have gone. The glazed, multi-coloured tiles on the exterior — making it looking like a gigantic, garish, public lavatory — have also been replaced.

Shepherd Mall, Oklahoma City (a 622,000 sq ft, single-storey, suburban U.S. shopping centre) has undergone a major $3.5m facelift since it was acquired by North American Property Unit Trust, a London-based real estate group which invests on behalf of British pension funds.

Management of the mall, however, has remained strictly North American in attitude; the group displays a determined and lively approach when it comes to persuading tenants to live up to the standard it has set for itself.

Shopping complexes in the U.S. are more actively managed than their counterparts in the U.K. Landlords expect retailers to shape-up or ship-out. At Shepherd, for example, shops which fail to follow management policies on design, or do not generate sufficient sales to justify their position in the mall, can expect to be offered cash to leave their premises early. Other stores will not have their leases renewed.

Some leases have been bought back at Shepherd simply in order to introduce different types of businesses which the managers believe would give a better balance to the overall profile of the mall. In other instances management has paid cash to help tenants redesign their shopfronts to help improve the look of the complex and bring new business into the centre.

Retailers leasing space in U.S. shopping centres make sizeable contributions towards advertising campaigns and promotions. Stores at Shepherd Mall are expected to pay at least 50 to 60 cents each year for each sq ft they occupy, the money going into a central promotional budget. Landlords contribute 25 cents for every dollar raised by their tenants.

A percentage of sales must also be spent on local advertising — 3 per cent annually for those taking on new leases at the centre.

Similar examples of shopping centre management can be found in Britain. Landlords' attitudes have sharpened, particularly as competition between various suburban and out-of-town centres has increased—and as some of the first generation complexes, built in the early 1960s, start to age and need renewing.

Generally, however, shopping centre management is far more intensive in the U.S. than in Britain.

John Newman, general manager of North American Property Unit Trust, explains: "The structure and regulations governing the U.S. retail property market give landlords much more incentive to manage their properties more actively."

A typical U.S. lease might run for 10 years with a landlord receiving a minimum rent based on the size of the store and a percentage of the retailer's annual sales.

Percentages vary; a costume jeweller selling low price high-margin products might pay between 8 to 10 per cent of sales, whereas a supermarket selling high volumes at low margins might only pay between 1 and 2 per cent of sales.

At Shepherd, approaching a third of total rental income (excluding service payments) is generated by percentage rents.

Percentage rents

In the UK, however, no allowance is usually made for the landlord to share in the financial success, or otherwise, of a tenant's business. In a landlord/tenant structure where shop leases typically run for 21 years with a standard five year review, percentage rents have not proved popular and have only been introduced in a few cases.

Dan Smalley, senior vice president of Schroder Real Estate who is responsible for the management of all U.S. shopping malls for Schroder clients, says: "When we acquired Shepherd in March 1978, there were just four eating places in the whole complex. We embarked on a deliberate policy to increase this number and give customers a wider choice. By September 1983 we had ten restaurants and fast food centres."

In another instance Shepherd paid the owners of Riverboat, a 4,200 sq ft women's fashion store, $12,000 for a lease which had two years to run.

"We subsequently divided the store," Smalley recalls, "to provide an 1,800 sq ft unit for General Nutrition, a health food shop. The remainder of the space was used to expand the existing Miller's sporting goods shop. After the division we obtained a total average rent of around $11 a sq ft compared with the $4.50 a sq ft Riverboat had paid."

There are a number of important differences between British and U.S. malls. Land is more readily available in the U.S. and centres on the whole are larger, and more sprawling; they are therefore often less crowded and uncomfortable for shoppers. Car parking is less of a problem.

Shepherd has room for 4,000 cars all at ground level — which equates to just over six car parking spaces for every 1,000 sq ft of retail space, a staggering ratio by British standards.

Availability of land, for instance, means prestige malls like Prestonwood in North Dallas can afford to give over space to an indoor skating-rink to attract whole families into the centre.

Colin Kerr, senior partner at Edward Erdman, the London-based international estate agents and chartered surveyors, says: "There are a number of factors which explain why U.S. shopping centres generally tend to be better managed than their British counterparts.

"Attitudes towards training are more positive in the U.S. where degree courses are offered in shopping centre management. The U.S. also maintains a thriving association of shopping centre managers, publishing regular articles and keeping its membership in touch with new marketing campaigns and management techniques.

"Britain, by comparison, offers no similar training scheme while it is only recently that a British chapter of the International Council of Shopping Centres has started."

He also notes that competition between centres and other types of retailing is more intense in the U.S. More restrictive planning attitudes in the UK have limited the number of new retailing developments competing against each other.

Kerr does feel, though, that attitudes are gradually changing and that "landlords are beginning to realise that they have to manage more actively if they are not to suffer when the centres begin to age and start to face competition from newer schemes."

Andrew Taylor

THE ARTS

Architecture

Colin Amery

A land of giants

Finland is a land for architectural enthusiasts. It is a country where both the architects and the general public respond to the whole idea of good architecture with powerful enthusiasm. Perhaps this is because the country is relatively young and has had to fight for its survival. Perhaps that long border with a darker country has intensified the brilliant nationalist moments that still occur in the newest constructions.

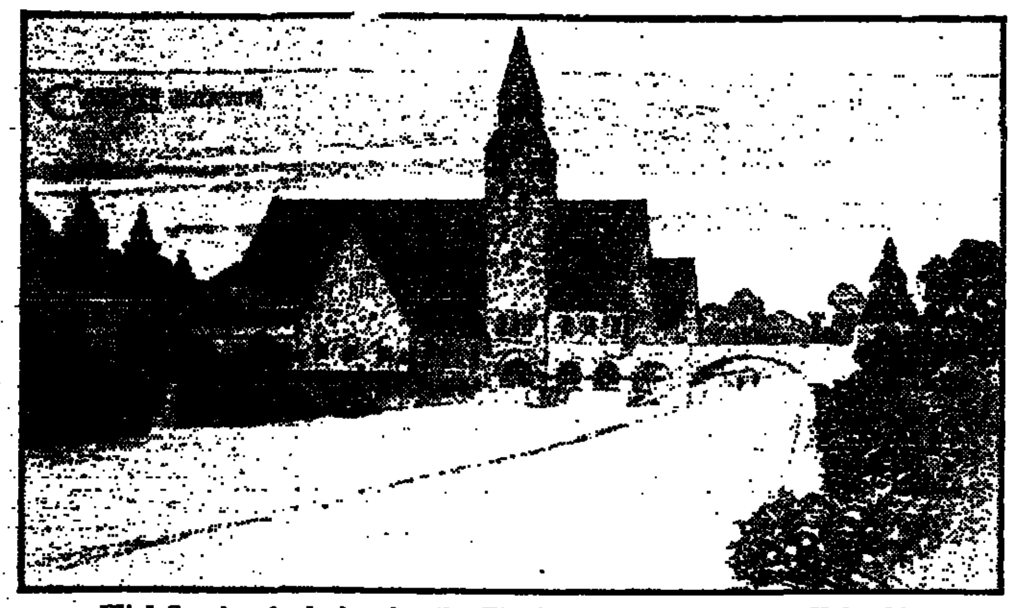
Finland should be in the forefront of architectural interest at the moment because of three exhibitions that run until, at least October 14, all designed to commemorate the great hero of Finnish and Western modern architecture Eliel Saarinen (1873-1950). Two are at the Museum of Finnish Architecture in Helsinki and while there is also material about Saarinen's interior design at Helsinki it can be supplemented by the displays at Hvittrask, the architect's home and studio outside the city.

Saarinen is a giant among architects. In Helsinki today a glance at the railway station, built as part of the great romantic revival of Finnish nationalism between 1907-1914, reveals all his genius. While he was under the same influences as the Vienna Secessionists his work has a more masculine power and more passion than the work of Otto Wagner. The huge stone arched entrance to the station flanked by pairs of giants holding globes of light is like the way into a railway that must lead to Valhalla.

The great joy of seeing Saarinen's work in Helsinki is that it can be seen in contrast to the earlier cooler splendours of the Neo-Classical centre of the city which is like a microcosm of Leningrad planted in Finnish soil by the country's Russian masters.

The major exhibition is chronologically the second one. It is entitled *Saarinen in America, Design in America The Cranbrook Vision 1925-1950.* It started its life in Detroit and then New York's Metropolitan Museum and was destined to come to the Victoria and Albert Museum. I think it is particularly sad that this arrangement was cancelled due to lack of funds because it has deprived London of a chance to see the important seeds of modern architecture which were planted and nurtured in Finland and then transplanted to America where they flourished until the late 1950s.

Saarinen was placed second in the competition to design the Chicago Tribune Tower in 1922. His design was much admired and he left Finland in 1925 to take up the offer to start the Cranbrook Academy of Art near Detroit. This school was one of the few to teach modern design in the U.S. and it followed the principles of the Weiner Werkstatte in Austria and the Bauhaus in Germany. It believed strongly in the relationship between the fine and the applied arts.



Eliel Saarinen's design for the Finnish National Museum, Helsinki, heralded a return to romantic nationalism

It is a magnificent display of several rich talents that Saarinen encouraged. It would not be right to say that they produced a style, but they did gather together an approach to design that resulted in an artistic serenity. Saarinen took his wife Loja, his daughter Pipsan and son Eero to Cranbrook where they flourished as textile designer, interior designer and architect respectively.

Other artists lured to Cranbrook included the sculptor Carl Milles, the painter Zoltan Sepesby, the brilliant weaver Marianne Strengell and a variety of excellent silversmiths and book-binders. These figures have an importance way beyond this exhibition because they represent the important transition between 19th century arts and the impending modern movement.

Architecture at Cranbrook assumed its proper place as a perfect setting for the expression of all the other art. Saarinen understood this and a visit to his home and studio at Hvittrask outside Helsinki make clear how this vision was formed. Here one has the rare opportunity of comparing the architect's own watercolour perspectives with the reality.

The house is now a museum and although it is evocative and powerfully situated I felt that its restoration needed to be much closer to the original. It would be quite possible accurately to recreate the house and studio in every detail—and it would be a very worthwhile enterprise. It is a house that still evokes the powerful alcoholic celebrations that must have taken place there—it must be one of the few houses in the world to provide iron rings in the walls to assist the drinker to his feet. Only if he found it impossible to continue to hold the ring was he considered drunk enough to be taken to bed.

Helsinki, with all the work by Alvar Aalto and the earlier Lars Sonck, is a potent architectural experience. It also has the quite remarkable Finnish Museum of Architecture, which is a rich source of archival pleasure and is housed in a building that is being perfectly restored. It is also a city that is small enough to allow you walk everywhere—so that every architectural experience is immediate and intensely satisfying.

★

While I was in Helsinki the Secretary of State for the Environment announced his verdict after the public inquiry into the planned extension of the National Gallery. He has rejected the present design with its strange tower and I think that he was quite right to do so. The winning design by architects Ahrends Burton and Koralek has now been so modified that it is unrecognisable as the interesting winning version.

Mr Patrick Jenkin suggests in his letter to the developers that they should ask the same architects to try *yet again* to produce the sort of design that is acceptable. This is a mistake. Now is the time for all concerned with this ludicrous muddle to admit their folly. It was always a wrongheaded notion to combine any extension to the National Gallery with a developer's office block on the same site. The confused brief and the even more confused competition (which the chairman of the Gallery Trustees described as a fracas) has not produced worthy architecture.

It is not impossible for the National Gallery to find benefactors for a new wing and a breathing space to allow funds to be organised would be welcomed by everyone. New architects will have to be appointed and a more effective form of competition/selection should be devised.

Phoebe/Holme Pierrepont Hall

Arthur Jacobs

Musical performances in historic houses are now not uncommon as an additional magnet for visitors and their cash, but what happens at Holme Pierrepont Hall, a few miles from Nottingham, is surely unique. An annual series of opera productions, staged on a small scale but with great artistic skill, has made a speciality of a genuinely neglected area, English music of the 17th and 18th centuries. This year's offering of Maurice Greene's *Phoebe* may not be ranked as revelatory as that of Pepusch's *The Death of Dido* in 1981 nor as important as last year's revival of the Milton Arne masque of *Comus*, but it gives keen pleasure none the less.

The musical director of the whole enterprise is Peter Holman, who leads in his bewigged instrumentalists and directs the accompaniment from the harpsichord. The stage director is Jack Edwards, whose gift in reviving the poses and movements of a bygone theatrical age through the medium of today's young singers is quite extraordinary. In *Phoebe* he led us to accept, without giggles or yawns, the machinations and misunderstandings of love and disguise which represent the conventions of "English pastoral"—a genre immortalised by Handel's *Acis and Galatea* and quite worthily essayed by Greene. *Phoebe* was given in concert form in 1755 but has possibly never been staged till now.

Best known (if indeed that is not already an exaggeration) for his church music, Greene shows an unexpected theatrical grasp of pace and character. The *da capo* form, the multiple repetition of words, and the confining of each aria to the expression of a single mood—these are, of course, conventions which must be taken for granted. Within them, almost all of *Phoebe* works quite well, with attractive melody.

Bronwen Mills in the title-role, a shepherdess in male disguise, gave a performance of such vivacity and brilliance as almost to carry the work in itself: a delight was the teasing mime when Phoebe assists Celia (Elisabethe Priday) to reject the boorish Linco (Andrew Knight), all effected while she is singing a rapid and difficult song.

Andrew Knight's wide-ranging bass and Michael Chance's admirably clear counter-tenor were strong assets too. Miss Priday's soprano did not ring so clearly. Peter Holman contributed strong, brisk musical direction, though with one or two heavy touches in recitative. Jack Edwards himself neatly spoke the prologue, and I will add the briefest epilogue: there are further performances next Friday, Saturday and Sunday.

Affair of State/Royal, Northampton

Michael Coveney

For its centenary year world première, the Royal in Northampton, a Victorian gem now pleasantly and ingeniously incorporated in the new Derngate concert hall development, has uncovered a most trite and uninteresting two-hander by C. J. Walters. It closed on Saturday and begins a tour of the county this week sponsored by East Midlands Arts. Good folk of Bedford and Guilsborough, of Kettering and Market Harborough, you have been warned.

The debilitating weakness of the play is its vague, Ruritanian setting "somewhere in southern Europe" where two foreign secretaries of nations engaged in a border dispute sit down at a table to chew the fat. It so happens Xandro and Diana had been students together in England 17 years previously and had become lovers.

Their diplomatic tiff is thus coloured by romantic associations and indeed the first, seemingly interminable, act of a mere 40 minutes ends with Diana removing her blouse and her eyepatch (she is known as the first one-eyed woman general in the Guinness Book of Records) and seducing her opposite number on the sofa.

This is all a far cry from the stiff formalities at the UN in New York, but then political, let alone dramatic, credibility is hardly the play's strongest suit. Patricia Kneale's gravelly voiced Diana with the Dayan (Dyana?) eyepatch is, like Melina Mercouri, a former stage and film actress risen to Ministerial status.

She accuses James Kerry as her silver-haired adversary, Xandro, of invading her country in 1967. The subsequent frail details of hostilities suggest a mish-mash of the Six Days War, the Turkish invasion of Cyprus and continuing border skirmishes anywhere in the Far East.

Each minister is unattended by staff; security is apparently non-existent. Bricks are lobbed through the window from a restless crowd outside whose hubbub erupts eventually in renewed conflict back at the border.

Seven months later, Xandro, now blinded in action, hobbles back into the conference room, bumping into the furniture, and he and Diana, one good eye between them, continue their low wattage squabbles. Peter Denyer's direction can do nothing to animate the evening which is set on a design of notable ugliness by Sheena O'Rourke: scalloped net curtains, a rickety table and stubby marbled pillars.

King Priam/Canterbury Festival

David Murray

The newly founded Canterbury Festival has been lucky. It is running for three weeks, which is bold for a newcomer, and relying upon the usual safe Festival acts from the Ballet Rambert and the National Theatre to George Melly and Max Wall. Canterbury makes a pretty location, of course, and it now boasts a theatre—The Marlowe—which has been most ingeniously and successfully transformed from its old guise as a cinema, and proved to accommodate Kent Opera with perfect comfort. What could not have been foreseen (and wasn't for the townsfolk flocked to Mozart's *Seraglio* instead) was that new Kent version of Tippett's *King Priam* would make the special triumph of the Festival.

Until now the opera has been seen in Britain only in the Royal Opera's fine original production by Sam Wanamaker, in which the epic scale has always been secure and the power of the intimate scenes has varied with successive casts. Kent has assembled a strong young cast, but the designs and lighting had to be planned by David Fielding and Paul Pyant for touring through much smaller houses. The big choral interventions, few but vital, have to be achieved by candid amplification from backstage.

It all works superbly. The progress of the opera is swift, sharp and unswerving, and the accumulated dramatic force takes the ending to a great height. Fielding's designs are unlocalised: corrugated metal doors slide back to reveal plain cracked walls, lofty curtained alcoves, or Trojan battlements buttressed against the threatening Greeks, and the gowns and armour only hint at ancient times. The choice of Nicholas Hytner as producer, perhaps inspired by his harshly brilliant *Rienzi* for the ENO, was no gamble—he sets the action in stark high relief, without tricks, colouring the characters with vivid touches as economical as those in Tippett's marvellously spare music.

The young Kent Orchestra excels itself under Roger Norrington, who matches his superlative Schütz revivals of the 1960s with this taut and tingling performance. Clean sonorities, rigorous sympathy: the dangerous string-ensemble flights — almost cadenzas — are as cogently etched as Tippett's rich inventions for the dominating band of winds (and the athletic piano). The tensile strength of the elaborate lyrical lines is remarkable, and evidently an inspiration to the singers.

They are of unequal maturity, but none of them is ineffectual. Led by Mark Curtis, the commenting trio of bystanders fully justifies its role, and Hytner's wry treatment of the serving-women's quartet is a palpable hit. Christopher Gillett's gentle Hermes (in golden nappies) rose to a sensitive last soliloquy, and John Hancorn cut a touching figure as Patroclus, whose erotic bond with Achilles is delicately but firmly marked.

On Saturday the trio for the principal ladies just failed to strike home: surprising, for each on her own had solid virtues. Anne Mason's placid Helen and Janet Price's Hecuba (brittle at first) took their arias with conviction; Sarah Walker's Andromache, rather too much the fussily disapproving matron so far, nonetheless indicated serious depths of feeling. Later performances will surely come right—ie, at Northampton in the second week of October, and in succeeding weeks Poole, Cambridge, Dartford and Brighton.

Howard Haskin was a lusty but vulnerable Paris (with his younger self engagingly represented by little Nana Antwi-Nyanin, who is also black: one had to suspend disbelief when the Priam family recognised him as their lost son). Omar Ebrahim's preening animal energy as Hector compensated for some colourless phrasing. Priam and Achilles, however, quite rightly carried the drama.

Neil Jenkins is the Achilles: a beautifully sung and beautifully shaded performance, noble both in the melancholy first aria (with Timothy Walker's long-practised guitar) and in the hair-raising war cry (though it didn't dim memories of Richard Lewis's terrifying ululation). Rodney Macann's Priam wants nothing but a few extra years' worth of disillusioned gravity; in all other respects it is a portrayal of piercing subtlety and tragic dignity, one which searches into new corners of the role, the lynchpin of the opera. It is worth taking a lot of trouble to see this splendid production wherever it touches down.

Iain Webb/Sadler's Wells

Clement Crisp

"Change and decay in all around I see" is the ballet critic's hymn. The erosions of time; the caprices of producers; the wilfulness of dancers, and what I suspect is the mute resignation of choreographers faced with new generations of bodies taking over roles made for other physiques, different temperaments, result in the loss of meaning and the deformations which are the common fate of ballets.

Ashton's sun-lit masterpiece, *La Fille mal gardée* is no exception. Wrong-headed, of course, to suppose that the charm and liveliness and sheer happiness of spirit which Nerina and Blair, Holden, Grant and Edwards first gave it, could be recaptured (though I record, with gratitude, that in a mutable world, Leslie Edwards' Farmer Thomas remains a constant of good humour), but the last Covent Garden showings of the ballet had a staid and predictable air.

It is Sadler's Wells Royal Ballet which now seems the best guardian of its joys, though even at Saturday afternoon's bright performance there were routine moments, as if certain incidents had been drilled rigidly and un-musically into the players. It is the creative wit and choreographic intelligence of David Bintley as Alain on this occasion, or as Simone at other performances, which is the best guide to keeping *Fille's* spirit alive, for as the Epistle to the Corinthians suggests, the letter of the steps killeth when unthinkingly applied.

Yet with Sandra Madgwick on stage as the Royal Ballet's youngest, most engaging Lise, and with Iain Webb making his London debut as Alain, there was much to enjoy on Saturday. Miss Madgwick has been a darling Lise since her graduation performance in the role, and needs no further praise from these columns, save to note that she soars over the stage and acts with unaffected good humour, and that her arms are as pretty and prettily nuanced as one could wish.

Mr Webb is not an obvious Alain, with his lean, clean physique and the suggestion of reserves of deeper feeling which make his Benno so impressive in *Swan Lake*. But he has a bold jump, and once past the multifarious problems of the first solo, which have defeated almost every Alain—the technical power to give the role a sure individual stamp, and he plays to Miss Madgwick with unaffected charm and ease. The partnership looks happy; the emotional life of the story glows: *Fille* lives on the best terms possible for today's audiences.

Search for dance home

Despite their differences over the Hayward Gallery, the Arts Council and the GLC are setting up a joint study group to try and decide on a London theatre to be the home for dance. Sadlers Wells and the Theatre Royal, Drury Lane, are the two venues being studied but if Drury Lane is not up for sale the Dominion will be considered.

Giulini's Brahms/Festival Hall

Dominic Gill

Giulini's Brahms cycle with the Philharmonia arrived at the symphonies on Friday: the second and fourth symphonies came first (the first and third follow tonight, are repeated tomorrow).

His way with Brahms is not the sort to bring reassurance and conversion to those (I am not one) for whom Brahms is altogether too Brahmsian for comfort. He does nothing to overlay or disguise, as some conductors do, the Brahmsness of the music, but follows it with thrilling exactitude. The composer verily leaps from his score, every wart and constraint, as much as every master-stroke, vividly — touchingly—revealed. Where Brahms hesitates, so does Giulini; where there is a hint of self-conscious indulgence, the hint is faithfully echoed; when a melody finally blazes forth, freed from its labyrinth, Giulini is not afraid to give it all its glory.

Directness and clarity were the hallmarks of the concert. Sometimes, too, surprisingly slow tempi — in the opening movement of no. 2 especially, and for both finales — which bothered me not at all, and in the main merely served to emphasise the open-hearted ease and sincerity of the interpretation. The *allegro non troppo* of the second symphony was exquisitely crafted, but quite unfussed, in its measured tread.

The opening movement of the fourth was massive, challenging, without the least attempt at over-inflation (for their very freshness and energy one is inclined to describe the performances rather in terms of what they were *not*). The andante bore no trace of condescension or whimsy. Rubato was of the best kind: constant (which is to say, not just laid on occasionally for effect), organic to the sense of the music, natural in emphasis. The brass introduction to the last movement was all the more sinister for its singular lack of melodrama.

Animal Farm/Olivier

Martin Hoyle

Opera, masks and Harold Pinter: Peter Hall's love affair with the rigidly formalised is always fruitful. Now his adaptation of Orwell has moved from the intimate Cottesloe to the Olivier; true to the book's irony, its fluency emergers as a stylisation as disciplined as Chinese theatre. Which is how it may strike the non-English speaker visiting the National, anyway.

The larger auditorium is less kind to the pigs' masks than were the Cottesloe's studio conditions. Michael Coveney has mentioned how pink ears and porcine muzzles blended into the actors' real faces: here they look blurred and untidy.

The familiar clumping idiom of Adrian Mitchell's lyrics prompted my companion tetchily to define them as Open University Didactic. Mr Mitchell is occasionally so perverse in avoiding a simple rhyme as to give the impression that he thinks them cissy.

The directorial equivalent of proletarian macho is here more successful. Sir Peter is not afraid to line his characters up to speak straight out to the audience; both the dawn of animal self-awareness and that chillingly reverberant last line come over perfectly.

Barrie Rutter's Napoleon is menacingly effective in repose and north-country reasonableness: you can almost hear the brain whirring. As yet he lacks the big guns for a part that ideally needs an Orson Welles to loom over the final scenes. David Ryall's glibly rationalising Squealer just avoids revue-type political caricature; Ashley Clark, the child who narrates, provides the right foil of terrible, impervious innocence; and Pamela Miles and Geoffrey Burridge touchingly embody equine integrity, though the horse masks suffer from the lack of a movable mouth: in crowd scenes it's sometimes hard to pick out the speaker.

Arts Guide

Sept 28–Oct 4

Music

WEST GERMANY

Berlin, Opera: Lieder recital with Janet Baker, accompanied by Geoffrey Parsons. Cavalli, Monteverdi, Mozart, Strauss and Debussy (Wed).

Frankfurt. Alte Oper: Vienna Symphonic Orchestra, conducted by Nikolaus Harnoncourt, with baritone Dietrich Fischer-Dieskau. Mozart and Schubert (Thur).

ITALY

Milan: Teatro alla Scala: Mussorgsky's Pictures at an Exhibition and music by Richard Strauss, conducted by Aldo Ceccato. (Wed and Thur). (809126).

LONDON

Philharmonia Orchestra conducted by Carlo Maria Giulini. Brahms. Royal Festival Hall (Mon and Tue). (9283191).

English String Orchestra conducted by William Boughton with Nigel Kennedy, violin. Grieg, Joubert, Bach, Schubert and Britten. Queen Elizabeth Hall (Mon). (9283191).

NEW YORK

New York Philharmonic (Avery Fisher): Season opens with Zubin Mehta conducting, Pinchas Zukerman violin. Kay, Schumann, Elgar (Mon); Mehta conducting, Zukerman viola and violin. Telemann, Hindemith, Vivaldi, Bruch, Wagner (Thur). Lincoln Center (7992585).

WASHINGTON

National Symphony (Concert Hall): Rafael Fruhbeck de Burgos conducting with Choral Arts Society of Washington. All-Verdi programme (Thur). Kennedy Center (2543776).

CHICAGO

Chicago Symphony (Orchestra Hall): Sir Georg Solti conducting, Milton Preves viola. Mozart, Bartok, Bloch (Thur). (4358122).

PARIS

Ornette Coleman, jazz saxophonist with the Ensemble Prime Time (Mon). TMP-Châtelet (2334444).

Rita Streich, soprano, with Geoffrey Parsons, piano (Tue 8.30pm). Théâtre des Champs Elysées (7234777).

Herve le Floch, violin, Brigitte Vandome, piano: Faure, Debussy, Pierne (Tue). Salle Favart (2960611).

VIENNA

Claudio Arrau, piano. Beethoven, Schubert and Liszt. Musikverein Grosser Saal (Wed). (658190).

BRUSSELS

Serge Reggiani in concert. Actor, film star and singer. Atelier de Louvain la Neuve (to Oct 13). (010495096).

ZURICH

Tonhalle: Telemann chamber music (Mon, 8pm); Tonhalle Orchestra conducted by Christoph Eschenbach. Bruckner. (Tue to Fri). (2011580).

NETHERLANDS

The Hague. Oude Katholicke Kerk. Netherlands Chamber Choir. Choral works by Saint-Saens, Ravel, Schumberg, Britten and Poulenc (Wed).

FINANCIAL TIMES

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Not so divine intervention

BY COINCIDENCE, the IMF-World Bank meeting was celebrated with a concise display of the present limitations of central bank intervention in the currency markets. This monetary "Operation Lionheart" included a nicely timed surprise attack on the mounting dollar by the Bundesbank, a failure to persuade allied central banks to commit themselves fully to the campaign (though even the hyper-reluctant Fed fired off a few symbolic rounds at one stage) and then tactical withdrawal, leaving private capital flows once again master of the field though a little knocked-about and somewhat wiser.

What did observers make of this exercise? Did they side with Professor Koehler of the Bundesbank's directorate who urged, just before the Washington meeting, that there should be concerted intervention and co-ordinated interest rate policies to keep exchange rates within a certain range? Or did they side with Beryl Sprinkel of the U.S. Treasury in his reported comment that far from "smoothing" the market, the bout of intervention has merely made it more agitated than ever?

Misalignment

On balance, we do not regard the Bundesbank's foray as so much wasted money. On the one hand the dollar had been rising very rapidly against the D-mark — a "disorderly" movement if ever there was one. On the other, there is no reason why a central bank should not have a view as to when an exchange rate is fundamentally misaligned, and should not on occasion express that view with hard cash for additional impact.

It is possible for a central bank to have a view about fundamental misalignment of the dollar, just as it is possible for a central bank to criticise the mis-match of U.S. monetary and fiscal policy that is causing the misalignment. Thus the Bundesbank, backed discreetly by other central banks, firmly conveyed its view that a DM 3.17 dollar was an economic nonsense. The sum it expended in so doing, while impressive as a round number, was a fraction of the interest income on its reserves. The effect upon international investors may well prove ephemeral, but the exchange rate movements over last week suggested that they were given pause for thought.

It is one thing for a European central bank to take a view on the dollar exchange rate or on the speed at which it is changing, and a nice question of judgment how best to express that view without losing credibility in the market place. It is quite another for European central bankers to have any illusions that they can control this exchange rate in the face of capital flows that now dominate its movements.

Intervention has an impact on markets in three ways: through the physical supply of, or demand for currency; through the impact on market psychology—once great, now dwindled—of the demonstration that a central bank has a view about current rates; and through the implied threat that intervention, if insufficient, will be backed up by economic policy changes that will alter the fundamentals of the exchange market.

The last element is by far the most important. It once underpinned the commitment to hold the Bretton Woods fixed exchange rate system together. The need for it has grown ever greater as the scale of international capital flows has loomed larger over the reserves of the central banks. Yet it is, of course, the element that is missing at the moment. The mechanism for economic policy co-ordination exists through the IMF and the Group of Five. Lip service is repeatedly paid to the idea at economic summits. But the main player, the U.S. Government, refuses to play.

Given the high interest rate, high capital inflow, high deficit policies that the Reagan Administration has adopted, the European governments have correctly opted to "decouple." Decoupling implies an acceptance of a large transatlantic interest rate differential and acceptance of an "unrealistic" dollar exchange rate. To talk under these circumstances of concerted intervention to depress the dollar is to talk of the antithesis of decoupling. It is to look back over one's shoulder at a currency that has wilfully been obliged by its Government to acquire an aberrant value.

For the present, the prime aim of concerted intervention and policy co-ordination by European central banks should be to preserve intra-European exchange rates that are as stable and as realistic as possible. This means a serious rethink by the British Government about its attitude towards the European Monetary System. It means European preparation to speak with one voice when and if the U.S. Government ever comes around to the view that the dollar is not a go-go stock but an important link between national economies.

British farmers face the future

THE National Farmers' Union's blueprint for the future of British agriculture deserves a small welcome. In its paper, The Way Forward, the NFU recognises that something must be done about the growth of surplusses in Europe and about the explosion of subsides under the Common Agricultural Policy. And it is facing up to public criticism of the way modern farming methods have often wrecked the countryside. The two problems are interlinked because it has been the pressure towards ever greater production which has often led to larger farms and more intensive farming methods.

Farmers' sensitivity to the problem of overproduction has been enhanced this year in two ways. First, the imposition of milk quotas has caused acute adjustment problems for British dairy farmers who had previously borrowed to finance increased production.

Milk quotas which have not yet been particularly effective in limiting production, are described by NFU as "very damaging to the country." The NFU now intends to call for higher prices in compensation—proof that, despite some of the nobler sentiments of the new policy document, farmers have not really changed their spots.

Worries about over-production have also been stimulated by this year's harvest—so bountiful as to be positively embarrassing. The UK, traditionally a cereals importer, has produced a wheat surplus of 14.9m tonnes and is not very skilled in the business of export—unlike some of its European competitors. The surplus and the path-breaking milk quotas have raised the spectre of the possible future use of quotas to control the Community's grain surplus. The NFU's new concern with over-production is partly motivated by a wish to head off the imposition of more quotas.

It argues that, in the important cereals sector at least, "restraint upon support prices, sensibly and consistently applied, is the most direct and probably the most effective means of holding down CAP expenditure." Academic economists are likely to favour price incentives rather than quotas, but many farmers doubt their effectiveness in solving the problem of over-production. Lower prices may lead merely to greater efforts to reduce costs, lower farm incomes but continued high production. The NFU argues against the "set aside" schemes for limiting production which have been used in the U.S. but does see some role for direct income support for smaller farmers who would be squeezed by a less-expansionary British policy.

Continued surplus

The charge most likely to be laid against the NFU is that while its policy document is good at recognising problems, it is short on effective solutions. Many will regard its approach to massive over-production—a gentle reduction in support prices—as inadequate. Others will support its call for steps "to arrest the ever-growing concentration of the industry" but lament the fact that it rules out any effective measures to prevent the growth in scale of farm businesses and the demise of the small family farm.

While the NFU quite rightly argues that farmers must heed the changing needs of consumers, particularly because of the changing conception of the relation between diet and health, it falls short of making specific recommendations.

But the NFU does deserve credit for admitting openly that the prospect of continued surplus production requires radical changes in the structure of investment aids and grants. Farmers are not suggesting that subsidies should be abandoned, merely that they should be better focused and reflect environmental considerations, energy conservation, animal welfare and so forth — surely music to the ears of the conservationist lobby. Despite the encouraging pointers, however, nobody should imagine that the NFU anticipates any rapid changes in British agriculture. "Any restraints . . . must be applied and enforced equally throughout the EEC," it argues — a certain recipe for slow progress.

Foreign affairs

If nuclear arms control is dead . . .

Ian Davidson on the state of superpower diplomacy after the Reagan-Gromyko talks

President Reagan

Foreign Minister Gromyko

THE WORLD has long prayed that the superpowers would resume negotiations on nuclear weapons. However, if we hoped that our anxieties would be allayed by the comings and goings at the UN last week, we were rudely disappointed. Indeed, we may have to face the possibility that traditional arms control is a thing of the past.

President Reagan made some conciliatory if vague noises about the need for nuclear arms control negotiations between the U.S. and the Soviet Union but his words were dismissed by Moscow almost before they were out of his mouth, and derided by Mr Andrei Gromyko, the Foreign Minister, on Thursday as "a vessel with nothing in it." Mr Gromyko's own speech was incontrovertibly emptier than Mr Reagan's, consisting almost exclusively of ritual denunciations of American imperialism. Whatever he may have said in private to Mr George Shultz, U.S. Secretary of State, or to Mr Reagan, his speech did nothing to encourage the belief that Moscow is ready to make any pre-election gift to Mr Reagan.

All the same, Mr Gromyko's pugnacious stance in New York was boorish, stupid and short-sighted. The Russians have no reason to expect any advantage from a strategic arms race, not because the Americans might win such a race, but because both superpowers already have far more nuclear weapons than either could possibly need. Since December, the Russians have been losing the propaganda battle, because it is they who have been refusing to take part in arms control negotiations. If they wanted to recover the high ground and put Mr Reagan on the spot, now is the time to do it, before the election.

What the Russians (and everyone else) have reason to fear is a race in the development of defensive weapons systems, popularly known as Star Wars. If Mr Gromyko had wanted to skewer Mr Reagan, he could have said: "After careful consideration, we are prepared to negotiate large reductions in offensive strategic weapons. But first the U.S. must publicly renounce any aspiration of deploying, at any future time, a defensive anti-ballistic missile system which would break the limits of the 1972 ABM Treaty. And second we must renegotiate, tighten and update the limits imposed by that Treaty."

Such a proposition would place Mr Reagan in a painful dilemma. When he launched his Strategic Defence Initiative (SDI) in March 1983, he offered it as a roseate vision of a more hopeful future, in which offensive nuclear weapons would become impotent and obsolete; he is bound to resist abandoning it so soon. Yet, since the SDI has come under fierce attack both from the arms control lobby and from the Democrats, it would look bad, if he in turn refused negotiations on offensive strategic weapons for the sake of a distant and probably unattainable future, and by implication confirmed that his administration did intend eventually to break the ABM Treaty.

The interesting thing about the Reagan speech is that it did not expound in any detail Washington's ideas for arms control, and did not even mention the U.S. START proposals which had called for substantial reductions in nuclear warheads. Instead, it proposed new instiutional procedures for regular discussions between Washington and Moscow, both on long-term arms procurement and arms control questions, and on other issues.

"We need to extend the arms control process," he said, "to build a bigger umbrella under which it can operate—a road-map, if you will, showing where, during the next 20 years or so, these individual efforts can lead . . . I will suggest that we institutionalise regular ministerial meetings . . . In such talks we could consider the exchange of outlines of five-year military plans for weapons development and our schedules of intended procurement."

The reasoning behind these suggestions was left blurred. Perhaps they reflect a belated acknowledgement that arms control does not take place in a vacuum and cannot be expected to be successful when the general atmosphere is poisoned by confrontation and suspicion, hatred and contempt: somehow there must be a broader meeting of minds to create the necessary conditions.

Or perhaps they indicate a sense that arms control in future will be elusive and perhaps unattainable, either because of the forces ranged against it in Reagan's America, or for more structural reasons deriving from the evolving nature of the weapons systems themselves. If the arms control process is blocked, it may be desirable to find alternative methods of placing restraints on the dangers of confrontation between the superpowers.

The balance of forces in the American arms control debate will be partly determined by the detailed results of the congressional elections and by the appointments of key officials. However, the structural problems of arms control will in any event become progressively more difficult.

In the good old days, the main strategic weapons were relatively easy to identify and count: missiles and bombers. Sea-launched cruise missiles have already escaped from the arms control net, but future problems are more far-reaching: miniaturisation, mobility, dual nuclear-conventional weapons, dual civil-military devices, ambiguities of all kinds. We may have to accept that arms control, in the form that we came to know it in the early 1970s, has receded irrecoverably in the rear-view mirror.

> Even if the superpowers had a perfect defence against ballistic missiles, we might be worse off

Yet there is a third obstacle to strategic arms control and that is the Reagan administration's Star Wars ballistic missile defence programme. The original objective of a total defence has come under multiple criticisms, among others that it would be logically and technologically impossible, and that the very attempt would be impossibly expensive; a round figure of $1,000bn has been estimated, though all figures are sheer guesswork.

One of the most telling critiques has come from Charles Glaser in the current issue of International Security. He argues persuasively that even if the two superpowers had a perfect defence against ballistic missiles—and he by-passes the questions of cost and feasibility—we might be worse off.

The three main problems he sees are static uncertainty, dynamic uncertainty, and conventional war. Static uncertainty (my short-hand) is that neither side could know that its defence was perfect, since it could not be tested in real conditions; therefore both would retain large offensive forces as a retaliatory insurance. Dynamic uncertainty is that no defence, even if perfect at some point, could be assumed to remain perfect; the enemy must be assumed to develop improvements in his penetration ability, and even a marginal degradation from perfection would imply the danger of massive destruction; dynamic uncertainty therefore requires a continuing race in defensive and offensive systems. And even if both sides knew their defences to be perfect (which is impossible), this might just make the world safe for conventional wars which could easily be far more destructive than any previous wars.

In the 18 months since Mr Reagan launched his strategic defence initiative, its apologists have scaled down their claims of what is technically achievable, to the point where a great fog surrounds the underlying aim. Few now seriously claim that a perfect defence is conceivable; some argue that an imperfect defence might be useful in complicatin gthe strategic plans of an attacker; others argue that there could be a defence in Europe against medium-range missiles like the Soviet SS 20s, without infringing the ABM treaty; still others suggest that relatively near-term technology could be mobilised simply to provide a partial point defence of military targets like strategic missile silos — as is already permitted under the ABM treaty.

Only two things are certain. While Mr Reagan's SDI may have been driven by laudable moral aspirations combined with ill-considered intoxication with the assumed wonders of technology, it was without any serious examination of strategic logic. The second certainty is that there can probably be no progress in arms control until the U.S. comes clean about, and probably renounces, the far-reaching implications of SDI.

The first problem here is that the Soviet Union has never ceased researching methods of defence against ballistic missiles, to the point where suspicious Americans believe that Moscow is preparing for the day when it can break out of the constraints of the ABM treaty; and that, because of its hi-tech content, this is a race which Americans think they can win, regardless of the fact that the race would be counter-productive all round.

The second problem, and this is the googly, is that technologies relevant to quasi-complete (ie space-based) defence systems, are also applicable to the destruction of space-based defence systems. Indeed, it is probably a good deal easier to destroy the satellites essential for any space-based defence system than to destroy ballistic missiles, because they are more predictable. And any proven anti-satellite attack system is, ipso facto, also a potential threat against observation, early-warning and communications satellites, the main function of which is avoidance of uncertainty and maintenance of crisis stability.

We are left in a great perplexity, trapped in two vicious spirals. Expert war-gamers tell us that the balance of terror is extraordinarily stable, because of the inhibitions and horrors of failure. These horrors have been magnified by the predictions of climatologists that any large-scale nuclear exchange, or even one-sided attack, would lead to an inexorable nuclear winter which would destroy most life and all civilisation in most of the globe. But on moral and political grounds, it is impossible to deny the claims for a different type of security strategy which might have some chance of mobilising popular assent. The so-called peace movements have subsided for the time being, but they will not go away until security can be based on less alarming premises.

The second vicious spiral is that the Reagan Star Wars initiative may have done more irreparable damage to the present system of nuclear stability than it can ever hope to achieve against the Soviet Union's ballistic missiles. Whatever Mr Reagan may now say about his fidelity to the 1972 ABM treaty, he may not be believed. The Russians know that he does not really understand the issues; but they know that he has unleashed a genie from the bottle which risks having an unrestrainable life of its own. They know that Mr Walter Mondale would cancel the SDI; but they also know that he will not be the next President of the U.S., and that by the time of the 1988 presidential election, life and technological research will have moved on apace.

In these unpropitious circumstances, then, it was stupid and narrow-minded of Mr Gromyko not to have grasped with both hands the opportunities offered by Mr Reagan's suggestions of institutional arrangements for discussing the long-range problems of nuclear stability. Below the surface of the U.S. START proposals for deep cuts in nuclear warheads, was the implication of rational negotiations on the types of nuclear forces required for stability; and the overriding demand of stability was writ large in the 1983 recommendations of the bipartisan Scowcroft Commission on Strategic Forces.

Perhaps 1970's arms control has been irretrievably lost; perhaps it is true that, in the specialised field of strategic theory, Mr Reagan does not know what he is talking about. Yet it would be tragic if, when someone has given him something sensible to say as an alternative to traditional arms control, the Russians out of emotional pique were to refuse to seize hold of it.

A world without offensive arms control talks need not be all bad: treaties with numbers mean that the maxima are also the minima. A world without serious dialogue between the superpowers is disturbing, and possibly dangerous. A world in which the restraints of the ABM treaty are abandoned or undermined could be very dangerous.

Men and Matters

Big blue set for ten

Big Blue looks set for the long haul. By naming John F. Akers, aged 49, to the number one job at IBM, replacing John Opel as chief executive when he steps aside in February aged 60, the world's largest computer business has picked a man who could lead it for a decade.

Akers, a highly-regarded IBM veteran who joined in 1960 as a sales trainee in San Francisco, was generally expected to win the top job after his appointment as president in February last year.

By picking Akers, IBM's board by-passed Paul Rizzo, aged 56, who was named to the previously-vacant post of IBM vice-chairman when Akers took the president's job.

Akers, a Yale graduate who has worked his way up through the IBM ranks in the hallowed tradition of the firm, is generally seen as a more approachable character than Opel.

"He's a regular guy," said one Wall Street analyst who, like others, welcomed the new top appointment. Akers is also seen as a blunt talker and tough fighter—in the IBM mould—and reportedly has an excellent memory.

He will be one of the youngest chief executive officers in IBM's recent history but not as youthful in the job as Thomas J. Watson, Junior, son of the company's founder, who became president in 1952 at 38 and chief executive four years later.

"If the EEC insists on changing the name let's call it Agincourt."

Shipshape

As a boy in Oslo, Otto Norland, aged 54, fully expected to follow his friends and relatives into the whaling fleet. Sea-faring was in his blood. He well remembers meeting his father's friend Nansen, the Arctic explorer.

Instead it was to be Oslo university to study marine affairs and economics, and then a trainee position at Hambros Bank, London, where he stayed for 31 years.

This week Norland catches what he hopes will be a flood tide in the shipping world by opening in the City of London the first office outside West Germany of the Deutsche Schiffahrtsbank of Bremen.

The bank, owned jointly by Dresdner Bank, Deutsche Bank, and the Bremer Landesbank, has specialised for nearly 40 years in its present form as a ship mortgage bank advancing medium- and long-term finance against merchant shipping. Currently it is managing about £1bn worth of ship mortgages.

Norland is to spear-head the bank's London operation as its London Representative. He has retired from his directorship of Hambros — while keeping an advisory role there — and will also retire from the chairmanship of the aluminium company Alcoa. Great Britain, at the end of the year.

What, I asked him, has lured such a specialised operation as Deutsche Schiffahrtsbank out of Bremen for the first time.

London, says Norland, is proving increasingly hard to beat as a world centre for the volatile combination of ship-owning and specialised marine financial services. When 40 Norwegian ship-owners sat down to dinner in London recently it transpired that all of them were operating in the UK in one way or another.

Norland is also pursuing his love for shipping through a directorship of Data-Ship (UK), which is providing specialised computer services for managing and running ships, and through his private consultancy, Norfram.

"Nor" in that name came, of course from Norland. But "fram" was borrowed from the name of his hero Nansen's ship.

Classic run

If Phedippides had had a word for it his choice would surely have been "gruelling." He was, as you will know, the Greek runner who was despatche from Athen to Sparta in 490 BC to seek help against the invading Persians. He succeeded in covering the 150 miles in two days.

At the weekend 38 runners from 14 countries attempted to match his feat in a commeration race which was first established in 1982 by a group of RAF officers.

The Spartathlon has quickly become one of Greece's main sporting events. Indeed the Financial Times felt disposed to encourage it this year by providing a handsome prize cup.

The winner for the second year in succession was John Kouros, a Greek night watchman, aged 28, who completed the run in 20 hours 25 minutes. He loped into Sparta at 3.25 am yesterday.

Dusan Mravlje, aged 31, a Yugoslav was second at 7.45 am and a British competitor, Patrick Macket, aged 29, from Grantham, was third.

A footsore note. When Pheidippides turned up, the Spartans — who were engaged in a religious festival — refused to help.

But while jogging back to Athens he met the god Pan, who kindly lent a hand.

Profitable pop

Two hours of pop music may not be everyone's choice. But the Association of Independent Radio Contractors is well-pleased with its new programme that was heard in most parts of Britain yesterday.

It marks the first attempt by the association to market nationwide.

An affable disc jockey called David "Kid" Jensen presented the top 30 pop records, thus offering a challenge to the BBC's well-established top 40 pop programme.

There are 44 local commercial radio stations in Britain, and 39 of them are taking the new programme. The Independent Radio News land lines from London Broadcasting to the local stations are being used in a national link-up so that national advertising rates can be charged.

Since commercial radio is allowed to carry nine minutes advertising in each hour the local stations together with Capital Radio in London could earn £24m in a year from selling advertising with pop this way.

All 39 participating stations are entitled to a share in the booty in proportion to their audiences. As the launch cost of the programme for the first year is estimated at only £100,000, a hefty profit is in prospect for them.

Ground rules

"The meek shall inherit the Earth," says a sign outside a Houston church.

To which someone has added, "But not the mineral rights."

Observer

U.S. AUTO WORKERS DEAL

GM learns a lesson from Japan

By Terry Dodsworth in New York

MR CHARLIE "Engine" Wilson, the hard-nosed president of General Motors in the immediate post-war period, used to boast that he had forged a labour relations system which was ideal for both the company and the country.

It allowed GM, he argued, to achieve its economic purpose by guaranteeing both discipline and productivity. And it gave the union what it wanted as well — a bargaining process which delivered an automatic "victory" in the shape of higher wages.

At the heart of Wilson's thesis was the notion that a trade union is a political animal with a style and a way of thinking which has little to do with the economic life of the corporation.

Its members are always engaged in a struggle, and its leaders have to win when it comes to the triennial ritual of wage bargaining to justify their existence.

As long as this process did not pose a serious threat to the financial health of the company, GM gave the union its victories. But this year, things have changed.

More important role for incentives

The document which the motor company has just signed with the leaders of its 350,000 workers is radically unlike anything that has ever gone before. It is so unusual that labour experts are still trying to get to grips with its implications, while some are wondering whether the rank and file can be brought to accept it as they vote over the next fortnight.

If the contract is agreed, however, and if the union makes it work the way it is expected to work, there is little doubt among analysts that it could change the face of the U.S. motor industry's collective bargaining.

The deal borrows generously from Japanese labour relations practices — possibly, it is thought, because Mr Alf Warren, GM's chief negotiator, has spent some time studying their methods. At the same time, it pitches the union into an unfamiliar role, defending jobs rather than straight wage increases, negotiating a role for the union in several areas of management prerogative, and moving towards a participating style which accepts some responsibility for economic efficiency.

Most important of all, Mr Owen Bieber, the previously untried President of the United Auto Workers, and a man who few had suspected of such subtlety, will not be nailing up a nice, round and very large figure for other workforces to aim at when their turn in the bargaining round comes up.

"It is impossible to look at this agreement using the old notion that there has to be a winner and a loser in wage negotiations," says Mr Quinn Mills, professor of business administration at Harvard Business School. "What we see here is the company and the union trying to adapt to both the vehicle and the labour markets."

Virtually every part of the contract flows from the concept that the market is imposing conditions where success in the only guarantee of both jobs and wages. This may be a simple idea, and it is certainly one which GM has hammered away at in a somewhat unsophisticated manner over the last few months. Yet the principle has been translated into the black and white of a contract with a great deal of imagination. Consider the following points:

Owen Bieber, UAW president (left): unexpected subtlety; Roger Smith, GM's chairman (right): a complex formula

First, the agreement takes the idea of using incentives in the wage packet a great deal further than ever before. Typical motor industry contracts in the post-war period have been structured to give steady annual wage increases, plus, more recently, inflation-related payments based on the consumer price index.

The cost of living increases (Colas) were designed to protect the workforce against the impact of the big surge in inflation in the 1970s. But the Cola formula, in turn, came to be seen as a component of that inflation, since it allowed cost of living payments to be consolidated into the basic wage on which future pay increases and fringe benefits were calculated.

The dual impact of the hefty basic wage increases and the Colas easily maintained the auto workers in second place behind the steel unions in the U.S. pay league. But critics claim that the increases also contributed to the loss of market share to overseas producers. Productively increases were unable to keep pace with the surge in wages—and manufacturers were forced to push up prices to levels which made the U.S. industry an easy victim to the insurgent Japanese.

The new agreement reflects a very different philosophy. GM is clearly aiming in the contract to establish a firmer grip on the fixed element in wages, so that it does not overrun normal productivity growth (reckoned to be increasing by as much as 6 per cent a year in the current wave of automation in the industry).

The strategy chosen to achieve this aim is to make a substantial part of earnings contingent either upon the company's profitability or the employees' performance. These parts of the agreement are thus designed to be self-financing, a formula reminiscent of Japanese car plants, where up to 50 per cent of salaries may be in the form of bonuses of one kind or another. "What they have done is to avoid the tendency to build costs into the basic wage rate, a policy which has given the U.S. industry its very inflexible pricing," says Prof Mills.

The wages formula is complex, but in essence it breaks final earnings down into five separate categories: a 2.25 per cent average increase in the first year of the agreement, which will be consolidated into the present rate; two lump sum payments, also averaging increases of 2.25 per cent in years two and three of the contract, but not consolidated into the base rate; Colas which will allow less to be consolidated than in the past; annual profit related bonuses which could yield $1,000 this year; and attendance bonuses which would give $500 a year for perfect performance.

All this, plus substantial improvements in pension rights, is reckoned to be worth a maximum of around 21 per cent to the average worker over the three-year period, assuming 5 per cent inflation a year.

This would bring average salaries and benefits up to around $26 to $27 an hour. But if the company does not perform effectively or profitably, incomes on the same basis could go up by as little as 10 to 12 per cent over the three years, well below the projected inflation rate. "This is the first time we have had to concentrate on any variable except those based on the CPI," says a labour economist.

There is a similar echo of Japan in the principle underlying the job security provisions, the other main aspect of the agreement. GM has not gone as far as to give lifelong employment to its workforce, but it has committed itself to maintaining jobs for all workers with more than one year's service in the company.

In return, the union has delivered on the kind of flexibility the company has been demanding for years. The UAW has not asked for specific jobs to be guaranteed—nor did it go over the top on one of its original aims of putting a stop to all GM's plans to "outsource" components and cars at the expense of closing internal plants. Instead, it has accepted a deal which will pump $1bn into a six-year retraining and redelopyment scheme under which employees will retain their incomes while acquiring new skills for jobs inside or outside the company.

The job security plan says that any one made redundant by new technology, productivity improvements, or decisions to start sourcing parts outside the company, will keep his or her job. But by doing nothing to hinder the company from making a move in any of these directions, the plan paves the way for a redeployment of assets of a kind which the company could never have attempted under the old system.

The union has also tacitly accepted the need for more flexibility by opting to allow a substantial widening of differentials between skilled and unskilled workers. In the past the UAW has stubbornly resisted such policies on the grounds that they were divisive.

By giving way now it has signalled that the way is clear towards increasing the incentives for workers on the shop floor to progress to higher skills where the differentials are no longer negligible—the pay of a janitor will go up by only 1 per cent this year, while a highly-skilled worker will receive 3.5 per cent.

In making these changes on payment systems and flexibility, the two sides have also innovated in a way no one really anticipated. The union has won a voice in several important decision-making processes, forcing GM into a more consultative style of management, itself into a more participative role and U.S. labour relations into uncharted territory.

Three examples underscore this change. First, the $1bn fund will be administered by a system of joint national and local committees that will decide who goes into the job security pool, who is retained and so on.

Secondly, GM is setting up a $100m venture capital fund to try to create new companies which will soak up the corporation's surplus labour. The fund will be one of the biggest of its kind in the U.S. and it, too, will be administered by joint management/union committees.

Finally, GM has been persuaded to give the union an unprecedented promise to build its planned new range of small cars, code-named Saturn, in the U.S.

A lot of learning for both sides of the industry

How well these changes in attitude stand up to the normal day-to-day buffetting of management-union relations on the shop floor is now the big question. The two sides are clearly going to have to do a lot of learning together over the next three years.

Even so, anyone involved in industrial relations in the U.S. will be watching the way the deal works out with fascination. If it sticks and spreads—and the UAW has tended to be a standard bearer in these matters—the U.S. unions will be very different creatures ten years from now.

"The two sides are really working to define a new role for themselves," says Professor Mills. He might have added that after years of trying to keep their victory flags aloft as their membership declined, the unions may be on the way to discovering a new role for themselves.

Lombard

Still beware of Treasury model

By Samuel Brittan

IT WAS only a little while ago that one could not listen to a speech or read an article critical of UK economic policy, or find a plan to "reflate" the British economy, without learning that the ideas had been "tested on the Treasury model." The critics would then go on to give "model" estimates of how much better the economy would perform in output and jobs at negligible cost (if any) in inflation if their advice were followed.

This was all black magic with which I had as little to do as possible. A "model" cannot but reflect the beliefs about the economy of those who devise the component equations—several hundred in the case of the Treasury, not to speak of "definitional identities." Not surprisingly, and after the usual time lags, the Treasury model is now beginning to reflect the beliefs of present Treasury chiefs and their advisers. This can be seen from the "simulations" published in the new "Supplement" to the 1982 "Technical Manual" recently issued by the Treasury.

But having looked at the new simulations I find myself just as sceptical of the revamped Treasury model as I did when it gave comfort to the famous 364 economists who protested against the Government's "monetarism" in 1981.

In the new version many old relationships go into reverse. Whereas most model builders have hitherto supposed that a depreciation of sterling relative to recent cost trends will improve "competitiveness" and therefore output and unemployment, the new simulations point to the opposite effect. It is an appreciation of sterling which not only reduces inflation, but raises output too. An increase in Government spending still gives a minuscule boost to output, but ranks below an increase in private sector demand in effectiveness, again a reversal of traditional relations.

As short-term economic forecasts are a necessary evil, something like the Treasury model has its uses. It may also be better than back-of-the-envelope calculations for assessing, say, the impact of some "shock" such as an oil price increase, so long as the user is sensible enough to try out alternative behavioural relations. But the present model is no more useful than its old ultra-Keynesian predecessor was for choosing between policy regimes; and it should not be the main intellectual tool in considering fundamental political decisions.

There are two grounds for doubt. First, negative results from demand stimulation and depreciation shown by the revamped model derive not from basic economic forces, but from relationships which happen to emerge today from the statistics. For instance, while it was formerly supposed that people spend more in periods of rising inflation, now it is supposed they spend less to rebuild the real value of their money balances. Such highly specific relationships tend to be very unstable and let the policy-maker down just when he most needs them.

My own doubts about demand boosting are based on much more general considerations such as the existence of the NAIRU (non-accelerating inflation rate of unemployment) and long-run vertical Phillips curves. This more "theoretical" approach does not give us precise numbers for one, two or three years ahead. But maybe these numbers are not to be had.

Secondly, the Treasury simulations are parochial. They show the supposed ineffectiveness of demand stimulation in a single country due to leakages into imports, currency depreciation and so on. They do not show the effects of stimulation by, say, the major OECD countries or the EEC acting in concert. It is no use Treasury officials saying that economic policy is still a national matter. It is so, partly at least, because individual Finance Ministers believe that their best policy is to put their own house in order and are sceptical of concerted action.

Before even attempting to draw policy conclusions, the ideas in the new Treasury model should be applied to other countries too and simulations carried out in terms of concerted or at least coincident policy changes. Such simulations, whichever way they go, will still need to be treated with suspicion because they are unlikely to show the more important long-term consequences of policy changes. Even so they will be more worth discussing than they are at present.

Letters to the Editor

Cost escalation of Tornado

From Mr Basil de Ferranti

Sir,—The title of your Leader of September 10 about Tornado and the proposed European Fighter Aircraft, "High Costs of Collaboration," together with comment in the article about cost escalations, needs to be seen in perspective.

Of overriding importance is the fact that many hundreds of suppliers throughout Europe, my own company included, to the Tornado programme were able to make approximately 1,000 off of their product instead of the, say, 200 off that would have been required for a national programme.

This carries with it obvious benefits in terms of cost reductions and, even more significantly, benefit in terms of a market base, enabling the firms concerned to sell their product more effectively through world markets.

Of course, it will never be possible to prove that the cost of one Tornado to the RAF was more or less than if it had either been a purely national purchase or if it had been bought from the U.S. One can say though, that the whole programme has been a resounding success. The British, German and Italian Armed Forces have received equipment with which they are pleased. Europe and Nato's defences have been immensely strengthened as Exercise Lionheart is showing and many hundreds of companies throughout Europe are in a better position to compete on cost and on performance with their competitors in the U.S. and throughout the world.

The production costs of the aircraft have also been held down by the fact that collaboration has required much better specification and testing of each of the many thousands of modules that go to make up the aircraft.

Jobs have been created and technology established in Europe with all the highly desirable consequences that follow for our ability to compete in peace and in war.

Basil de Ferranti.
Chairman, Ferranti.
Millbank Tower, SW1.

U.S. Jewish lobby in the Middle East

From Dr Peter Pulzer

Sir,—It was ill-advised of Mr W. El-Miqdadi to cite President Truman on the power of the Jewish lobby on American policy-making in the Middle East (September 25). Truman records (Memoirs, Vol II, p 170): "I think I can say that I kept my faith in the rightness of my policy in spite of some of the Jews. When I say 'the Jews' I mean, of course, the extreme Zionists. I know that most Americans of the Jewish faith, while hoping for the restoration of a Jewish homeland, are and always have been Americans first and foremost. As the pressure mounted I found it necessary to give instructions that I did not want to be approached by any more spokesmen for the extreme Zionist cause." This hardly suggests that Jewish lobbying was the primary determinant of American policy-making.

Peter Pulzer.
Christ Church, Oxford.

Faulty solutions to housing defects

From Mr D. D. D. Lloyd

Sir,—I read with interest Mr B. Toon's letter of September 19 concerning the Government's policies on housing and would raise a further matter which is adding to the growing confusion in the area of repairs to housing.

It would appear that the architects of the recent Housing Defects Act have achieved a most devious method of preventing Local Governments from spending monies on the urgent need to repair defective precast concrete housing, despite national outcries which resulted in the passing of the Act.

The procedure for the owner to obtain a grant to carry out repairs to a defective dwelling is that he applies to the Local Authority from whom it was purchased, in a supposedly defect-free state. That Local Authority must satisfy itself that the work required to reinstate the dwelling would enable the applicant to sell the property to another individual and "would be likely to be able to arrange a mortgage on satisfactory terms with a lending institution"—for instance a building society.

The Building Societies' Association has recently held meetings with the DoE and have requested the appointment of the National House Building Council (NHBC) to present to them, repair systems which will meet their particularly stringent criteria that the dwelling must provide satisfactory housing for at least 30 years. In the case of many of the types of system-built houses this will be impossible to achieve in a guaranteed form within reasonable cost-effective limits, as defined in the Act.

It must also be said that certification of a scheme by NHBC, who do not even have their brief fully defined at this time, will undoubtedly take months, if not years, to carry out their work of selection of schemes which will be acceptable by the Building Societies. And final acceptance rests with them. Thus, no Local Authority will dare to approve grant aid until this whole chain of events has run its course and even then may find that the cost is unacceptable as defined in the Act.

At a stroke, therefore, necessary expenditure of up to £250m at current prices (Government figure) of which up to £45m would be spent in 1985-86 will not be possible and an extremely effective public expenditure cut-back will have been achieved without a shred of blame appearing to rest with Government. Owners will be deprived of grants to repair defective housing—the building of which was wholeheartedly encouraged by Governments of the 50's and 60's. Thus the properties will be unsaleable due to their defects and unmortgageability. This appalling "Catch 22" affair can only be resolved by Central Government accepting their responsibility to approve reasonable criteria for cost-effective schemes and apply pressure to Building Societies to lift the blight which will, for the foreseeable future, hang over the most valuable asset of the 16,500 owners of these "defective dwellings."

And if the money is not spent yet a further sector of the construction industry will suffer the consequences and result in a source of further unemployment.

D. D. D. Lloyd,
Score House,
Hitchen Hatch End,
Sevenoaks, Kent

U.S. way with energy saving

From the Association for the Conservation of Energy

Sir,—It is no good Dr L. G. Brookes (September 17) arguing that encouraging energy efficiency on a micro-economic level, e.g. in individual buildings, makes sense, but that at a macro level the only response to forecasts of increased energy demand is for an energy utility to invest in new supply sources. It simply won't wash.

In my earlier letter (September 11), I outlined in some detail the programme which the largest U.S. energy utility, Pacific Gas and Electric of California, has constructed to encourage its customers to install energy-saving devices in their homes, offices or factories with the deliberate objective of reducing their individual fuel bills. These actions would, I gather, have Dr Brookes's support: "trying to use fuel more efficiently is a sound reaction," he argues.

However, what he appears unable to accept is that the P G and Es of this world—and they are far from the only U.S. utilities following this line of reasoning — are encouraging energy efficiency not as a good public relations gesture to keep their customers happy (although it does); not even to preserve the earth's resources (which they are): but primarily because it makes sound business sense for them to do so.

As the utility's vice president for electrical resources stated only last July: "Our conservation programmes are considerably less expensive than the cost of adding new capacity, and clearly less risky from an investment perspective."

The "notorious funding problems under which the U.S. utilities labour," according to Dr Brookes, are ones I submit which in fact reflect far more the true exigencies of the market than in the UK. The vast majority of U.S. utilities are stockholder-owned, and it is the stockholders—rather than anonymous Whitehall mandarins—who have to be convinced that the utility itself would operate more financially efficiently by purchasing new energy supplies than by methodically obviating the need to do so.

Additionally, the existence of Public Utility Commissioners, to whom the utility has to justify (often in public hearings) its proposed investment policies, is also a factor which can help ensure that the automatic Pavlovian response of the energy supplier does not always rule.

I do not pretend to know, any more than the Commons Select Committee on Energy, who have raised similar questions in the past, whether expending £20bn on Norwegian gas or building the equivalent gigawatt power of eight further Sizewell Bs which the CEGB promise us over the next 15 years, is the wisest use of public money—even within the narrow energy field. But, like the Select Committee, I do think we should be told.

Andrew Warren,
Director,
Association for the Conservation of Energy,
9 Sherlock Mews, W1.

FINANCIAL TIMES

Monday October 1 1984

Michael Morgan on Wall Street writes about foreign investment in the U.S.

Europe hungry for Treasury issues

THE HIGH real level of U.S. interest rates has this year brought about big shifts in the approach of foreign investors to U.S. financial markets.

Figures issued by the Treasury show almost a fourfold increase in net purchases by overseas investors of U.S. Government securities in the second quarter. At the same time, foreigners were net purchasers of only $109m of U.S. stocks in the six months to June 30, after a near record $5.3bn buying spree seen in 1983.

In the opposite direction, the cautious approach of U.S. investors to overseas equity markets that became evident in the second half of last year has continued, with net sales of $360m recorded in the first half of 1984, after the record $3.8bn *of purchases seen last year.*

Analysts say that the abolition in July of the 30 per cent withholding tax levied on interest paid to foreign investors has further whetted the appetite of foreign investors for U.S. Treasury issues, and they expect a continuation of the pattern set in the first six months.

Mr Nicholas Sargen, of Salomon Brothers, says: "At the beginning of this year we were looking at a current account deficit of between $80bn and $90bn, compared with last year's figure of $41bn. In 1983, net inflows through the U.S. banking system were $21bn, while net purchases of bonds and equities by foreigners accounted for only $10bn.

"The first quarter of this year produced only a modest inflow of funds, with neither the dollar nor the stock and bond markets proving particularly popular. But as interest rates picked up, foreigners decided the U.S. was the place to put their money. Throughout the first half of the year net purchases of stocks and bonds were running at an annualised rate of $20bn, nearly double the 1983 figure."

Mr Sargen estimates that total government debt held by foreigners *at the end of June accounted for* $170bn out of the total $1.095 trillion (billion billion).

In an effort to continue to tap foreign sources of funds to finance the U.S. deficit, the Treasury is in the process of introducing targeted bonds for foreign investors. Later this month it hopes to raise as much as $2bn with the issue of four-year notes.

Net foreign purchases of U.S. Treasury notes and bonds ($m)

	1983	1st qtr 84	2nd qtr
Europe	7,939	1,787	1,463
Switzerland	38	134	72
W. Germany	3,725	1,546	759
Britain	1,975	(97)	785
Asia	(3,088)	(618)	(278)
Japan	2,333	423	1,027
All countries	5,836	802	3,142

Net purchases of foreign stocks by U.S. investors ($m)

	4th qtr 83	1st qtr 84	2nd qtr
Europe	413	(54)	101
France	101	41	24
Netherlands	(17)	(153)	(42)
Switzerland	38	15	(5)
Britain	310	43	90
Canada	(86)	(130)	(17)
Japan	(152)	(193)	(230)
All countries	207	(354)	(6)

There is, however, considerable scepticism over whether the issues will have any short-term impact.

Dr William Griggs, managing director of analysts Griggs and Santow, says: "Regardless of what happens in the short term, the bonds have the potential to be very important in the longer run since they are going to make this market very much more accessible to a great many people."

Net foreign purchases of Treasury notes and bonds increased from $802m in the first quarter of this year to over $3.1bn in the three months to June, taking total foreign holdings to an estimated $95bn.

Almost half the second-quarter demand came from Europe, with net purchases of $1.46bn. West German investors, who were heavy buyers with net purchases totalling $3.7bn in 1983 and $1.5bn in the January to March period, slowed the pace of their acquisitions to $759m in the second quarter, taking total holdings to more than $19.5bn.

Britain was a net seller of $97m of the Treasury issues in the first quarter, but interest reawakened, producing purchases of $785m in the three months to June.

Meanwhile, net foreign demand for U.S. corporate bonds declined from $481m in the first quarter to just $67m in the second, after purchases of $972m in the whole of 1983.

The turnround in demand for U.S. stocks was led by Asian investors, who were net sellers of more *than $1bn of U.S. equities in the* first half.

Demand had picked up from a net $3.8bn in 1982 to $5.3bn in 1983. Purchases slowed to $600m in the first 1984 quarter, but sales of $491m were seen in the second. The Europeans were net sellers of $82m. However, demand held up in Canada, with purchases of $877m for the first half and in Latin America with $325m of purchases, although in both cases demand slackened in the second quarter.

Much of last year's record U.S. investment abroad was concentrated in the first half of the year, and by the final quarter net purchases were down to $207m. Net sales of *$354m were seen in the three* months to March and that was followed by further sales of $6m in the second quarter.

First-half net purchases of $47m were recorded in Europe, after $2.2bn purchases in 1983. First-half sales in Britain of $47m compared with $1.1bn of purchases in 1983, and similar caution has become evident in U.S. investors' approach to the French and Swiss markets. Net purchases of French stocks totalled $101m in the final quarter of 1983, $41m in the first 1984 quarter and $24m in the second quarter.

For Switzerland, net purchases declined from $38m in the final 1983 quarter to just $10m in the first half of this year.

Net sales of $17m were recorded in the Netherlands in the final 1983 *quarter and these had picked up to* $153m in the first 1984 quarter. The selling trend continued in the second quarter with $42m of sales.

A sharper pattern of sales was seen in the U.S. approach to the Japanese market, with net sales totalling $152m in the last 1983 quarter, rising to $193m in the first quarter and $230m by the second 1984 quarter.

THE LEX COLUMN

New maths at the Bank

It seems the stock market was right after all. Over the past five years the rise in UK equity prices frequently looked at odds with the dismal news on corporate profitability which emanated from the CSO and other official agencies. In its Quarterly Bulletin of June 1982, for example, the Bank of England reported that the pre-tax real rate of return on trading assets was under 2¾ per cent, the lowest ever recorded. The point was dramatically illustrated by a series of precipitous graphs.

Yet in its latest Bulletin, of which extracts are published today, the Bank paints a very different picture of the recession. Using as the basis of its analysis the performance of the country's 1,800 largest non-oil industrial and commercial companies (ICCs), the Bank finds that – with the single exception of motors – every sub-section of the FT-A Industrial Group showed a positive *current cost return on capital in* each year between 1980 and 1983. In 1982, the year of its earlier article, the Industrial Group as a whole made a return of 8 per cent in current cost terms and of 14 per cent on a historic cost basis.

Capital spending

If the Bank's analysis is correct – and a few City sceptics believe its numbers are still too low – industry would appear to have taken an unduly cautious attitude towards capital spending over the past five years. Using the return on index-linked gilts as a yardstick, virtually every industrial sector earned a higher real return on manufacturing assets during a period of unusually depressed demand than it would have done in the financial markets. And, while it is legitimate for companies to expect a risk premium in their return on fixed assets, the consistency of the high real returns between 1980 and 1983 is quite remarkable.

It is not beyond the bounds of possibility, however, that official statistics have also understated, by a considerable margin, the extent of capital expenditure during the recession. Official sources and uses of funds tables do not seem especially reliable. It emerges from the latest Bulletin, for example, that the national accounts consistently overstated dividend payments by ICCs in the decade between 1973 and 1982. In that final year, the overstatement was no less than 66 per cent, equivalent to £2.2bn ($2.7bn) of disappearing dividends.

The main empirical argument *against the notion* that industry has been spending heavily is the undoubted strength of corporate liquidity. The Bank estimates that the ICCs' financial surplus was £8bn in 1983 and, to judge from recent appropriation account figures, it has climbed further since. This year, for the first time, the financial surplus of UK plc may exceed the Government's budget deficit.

Yet the Bank itself acknowledges that, while the volume of manufacturing investment appeared to drop sharply between 1979 and 1982, the growth of off-balance sheet finance – principally leasing – makes the figures hard to interpret. Furthermore, the corporate sector's financial surplus can be explained by factors other than slow capital formation.

Tax payments have failed to keep pace with profits growth over the past three years, while a slight widening of dividend cover has also contributed to the increase in undistributed earnings. Above all, though, the rise in profits has re*flected a widening of trading mar*gins – resulting from higher productivity and weaker sterling – rather than better demand. So the profits recovery has not placed the kind of pressure on working capital that characterised the late 1970s. And improved stock control techniques have ensured that inventories have risen less fast than sales. According to the Bank's figures, net working capital at balance sheet dates declined from 16 to 12 per cent of sales between 1978 and 1983.

There is, as yet, little evidence that the achievements of the past four years are being dissipated. The trading profits of the ICCs could well rise by around a fifth this year on a 10 per cent increase in sales, while, after allowing for the financial surplus, growth at the pre-tax level should be higher still. Remarkably few companies have reported disappointing results for *the half year to June so far* and, although dividend announcements have suggested some caution about the second half (not least because of the miners' strike), not many company chairmen look dismal at press conferences these days.

Earnings growth

Next year seems bound to see a slowing in earnings growth, although it would be surprising to see the increase in pre-tax profits, and for that matter in dividends, falling into single figures. The past five years have by no means created a recession-proof British industry and it is unlikely that sterling, which has contributed roughly 2 percentage points to profits growth this year and last, will be so helpful.

The Industrial Group is currently yielding 4.14 per cent and offering a historic earnings multiple of 12, which, for this stage in a cycle, might look demanding. But the ICCs will enter any slowdown equipped with new-found financial *income and sporting historic* returns on capital employed of close to 20 per cent. If the stock market was right between 1979 and 1983, there seems no reason to suppose that it is suddenly wrong now.

W. German Greens lift vote

By Rupert Cornwell in Bonn

THE RULING West German Christian Democrats (CDU) were last night heading for a sharp defeat in yesterday's municipal and borough elections in North Rhine Westphalia, at the hands of the opposition Social Democrats and the radical Greens.

According to early predictions the CDU had dropped back 4 percentage points or more since the last vote in 1979 to 42 per cent or less – to be overtaken by the SPD, with between 43 and 44 per cent.

The biggest victors, however, were the Greens, fighting on a vigorous anti-nuclear and environmentalist platform. The party, which made virtually no impact five years ago, is being credited with over 9 per cent.

For all the importance of local issues, the outcome has undoubtedly been coloured by the error-prone leadership lately of Chancellor Helmut Kohl in Bonn.

The outcome suggests that the battered Free Democrats (FDP) have failed to pull out of the nose-dive in popularity that has already seen them fail to win representation in Strasbourg at last June's European elections.

The party, damaged by scandal and policy uncertainties, is being given around 4.7 per cent of the vote. That is below the 5 per cent minimum required to win seats in state or national parliament, and almost 2 per cent down on five years ago.

Should those preliminary estimates be borne out by fuller returns, they indicate that the SPD, while likely to gain a majority next May, might find it very difficult to avoid *governing* North Rhine Westphalia without an alliance with the Greens – more clearly than ever established as the third force in both state and national politics.

Gromyko-Reagan talks 'set scene for constructive dialogue'

BY REGINALD DALE IN WASHINGTON

SENIOR MEMBERS of the Reagan Administration yesterday claimed that last week's series of exchanges with Mr Andrei Gromyko, the Soviet Foreign Minister, had set the scene for a more constructive dialogue between the U.S. and the Soviet Union.

They said, however, that the exact timing and the nature of further contacts with Moscow remained to be decided, and that the onus was now on the Soviet Union.

Mr Robert McFarlane, President *Ronald Reagan's national security* adviser, said that "a steady discourse of increasing quality," would start soon. Moscow, however, would probably need "a couple of months" before responding to the proposals for more intensive high level exchanges put by Mr Reagan to Mr Gromyko in Washington on Friday.

Mr George Shultz the U.S. Secretary of State, said that at the end of his second meeting with Mr Gromyko on Saturday both sides had agreed that it was important to "keep in touch". The two superpowers would now work "carefully and systematically through diplomatic channels" in the expectation of exploring all issues of mutual concern and in the hope of coming to serious negotiations, he said on ABC television yesterday.

The official Soviet newsagency Tass was less fulsome in its account of the Shultz – Gromyko meeting. Tass said that the two men had *"agreed to have in future, if need be* and by agreement, meetings of representatives," to discuss problems in areas such as Europe, the Middle East and the Far East, as well as other world issues.

The Tass report was nevertheless *regarded as mildly* encouraging by Administration officials. They pointed out that it did not repeat the criticism of U.S. positions made earlier in the week and appeared to leave open the possibility of more substantive negotiations.

The Tass report said that Mr Gromyko had emphasised in his talks with Mr Shultz that Moscow was "ready for normalisation and all-round development of relations" on the basis of equality, mutual respect and non-interference in each other's internal affairs.

White House officials claimed that this was about as much as they had expected to emerge from the talks, which had been intended to do little more than break the ice in superpower relations. U.S. officials had not expected a breakthrough on any issues of substance during last week's meetings, and had frequently said that they did not expect real progress until after the *November 6 U.S. presidential election.*

Nevertheless, Mr Walter Mondale, the democratic presidential challenger, immediately sought to turn the lack of concrete achievement at the talks into an electoral issue. He sharply *criticised* Mr Reagan for failing to make any progress in his first meeting with a Soviet leader after 44 months in office.

Mr McFarlane, however, said that it was too early to expect results and that it was now up to the Soviet Union to decide on the timing of further exchanges.

Mr Gromyko had not indicated any changes in Soviet positions U.S. officials said. Mr Shultz said that Mr Gromyko was still insisting that the U.S. freeze its modernisation of defensive and deterrent forces, as well as its space weapons research programme, before starting negotiations.

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Brazil may speed up ore plan

By Andrew Whitley in Rio de Janeiro

A TOP-LEVEL mission from a consortium of Japanese steel mills led by Nippon Steel, which arrived in Brazil over the weekend, is expected to give permission for the speeding up of the Carajas iron ore project, Brazil's most important development scheme.

The Japanese mills, grouped in the Nippon Carajas Iron Ore Company, are the leading customers for *the project, with long-term con*tracts for annual offtake of 7m tonnes – out of initial output of 15m tonnes – rising to 10m tonnes when the project is fully onstream.

Companhia Vale do Rio Doce (CVRD), the Brazilian-state mining *company, which is responsible for* the $2.8bn Amazon region project, is hoping to take advantage of the recovery under way in most industrialised nations' steel industries to bring Carajas forward by six months.

No official announcement has been made, but CVRD officials say privately they are hoping to reach agreement with their customers to allow the iron ore project to come onstream on January 1 1986.

The project – incorporating a mountain range full of high-grade iron ore, an 890km railway and a new seaport on Brazil's northern coast – is due to be officially inaugurated next March. On the existing schedule full-scale commercial operations are not due until July 1986.

With strongly encouraging signs of improvement this year in the world iron ore market, the order has already gone out from CVRD in Rio de Janeiro to speed up work on all aspects of the project. A fresh batch of contracts for work on processing plant at the mine site have *recently been left, according to a se*nior CVRD official.

The 13-man Japanese mission will be looking in particular at the port handling facilities and railroad terminal under construction outside Sao Luis, on the coast of Maranhao state. This new export terminal will be the gateway to the markets of the industrialised world for the virtually untapped mineral wealth of the Carajas region.

Among the steel mills participating in the current mission are Nip*pon Steel, Nippon Koken, Sumito*mo Metals, Kobe Steel, and the Nisshin Steel Corporation. Representatives from four major Japanese shipping lines and trading houses are also taking part.

UK set for Channel link talks

BY ANDREW TAYLOR IN LONDON

SENIOR UK transport department officials have signalled to the *French Transport Ministry their* readiness to reopen discussions on prospects for building a cross-Channel link.

Talks between British and French officials had been expected to start earlier this summer but *were overtaken by the upheavals* within the French Government with the appointment of M Laurent Fabius as Prime Minister.

The discussions should resolve whether the British position – that any Channel link must be built without British Government financial guarantees – is acceptable to the French authorities.

The French remain wary of British commitment to the project after the unilateral decision by the Labour Government in January 1975 to abandon plans for a Channel tun*nel, even though construction had* started several months earlier.

The three British-led private sector initiatives currently under study have reached the point where they can make very little further progress until key issues are settled.

The consortia proposing the rival schemes say they are unable to start securing the financial backing requested by Mr Nicholas Ridley, Transport Secretary, until they are able to given bankers a clearer picture of the kind of terms under *which they will be expected to pro*vide finance.

Those include how a channel tunnel, bridge, or combination of both would be managed and operated; how financial returns are to be established; and what controls individual governments would require.

*French and British officials, how*ever, appear to be a long way from discussing such details.

Still to be resolved is how the French will respond to Mr Ridley's unambiguous statement in May that the British Government will *not provide financial* guarantees at any stage of the project.

The UK Government's firm position is that, while it is prepared to promise not to take any action that would prevent a link from being built, it is not prepared to provide guarantees to ensure that it is built.

The three schemes before British transport officals are:

- The Channel Tunnel Group – representing construction companies Wimpey, Costain, Tarmac, Taylor Woodrow and Balfour Beatty – proposing twin rail tunnels.
- Euroroute, proposing a cross-Channel link involving a combination of bridge and tunnel. British members *of* the consortium are: British Steel, British Shipbuilders, Trafalgar House and civil engineers John Howard and Fairclough Construction. French members are: Société Générale, banking group; GTM Entrepose, civil engineers; and Chantiers de l'Atlantique, the nationalised shipbuilding concern.
- Euro Bridge, proposing a bridge across the Channel. Members of the consortium are mostly drawn from designers and consulting engineers, supported by ICI and British Petroleum. The consortium is also believed to have drawn support from some French interests.

Argentina to repay $100m

Continued from Page 1

al Monetary Fund IMF), it will be seeking a $20bn debt rescheduling to include public and private-sector debts and new loans from its commercial creditor banks.

Argentina is seeking a multi-year rescheduling package covering debt falling due between 1982 and 1985 and amounting to some $12bn public-sector debt and an undetermined amount of private-sector debt. The amount of new money it needs has not been specified but it is estimated to be about $3bn. Argentina also wants a multi-year rescheduling of its official debt.

The breakthrough in the Argentine debt negotiations was last week's announcement that Argentina had at last reached agreement with the IMF giving it access to SDR 4.4bn ($1.4bn) of IMF credits.

Meanwhile, Yugoslavia has asked its creditor banks for a multi-year rescheduling of debt falling due from next year. Yugoslavia is believed to be seeking rescheduling of between three to five years' maturities in one package, but not to roll over 100 per cent of any one year's maturities.

World Weather

		°C	°F			°C	°F			°C	°F			°C	°F
Ajaccio	C	20	68	Dubrovnik	–	—	—	Malaga	S	27	81	Salzburg	S	21	70
Akrotiri	S	29	84	Faro	S	25	77	Malta	S	27	81	Seoul	S	24	75
Algiers	F	24	75	Florence	C	21	70	Manila	S	33	91	Singapore	F	28	82
Amsterdam	R	14	57	Frankfurt	C	17	63	Miami	R	24	75	Stockholm	F	10	50
Athens	S	25	77	Funchal	C	23	73	Milan	S	20	68	Strasbourg	C	19	66
Bahrain	S	33	91	Geneva	S	19	66	Moscow	C	11	52	Sydney	C	14	57
Bangkok	R	30	86	Gibraltar	S	26	79	Munich	S	19	66	Taipei	S	30	86
Barcelona	F	22	72	Guernsey	S	14	57	Nairobi	C	27	81	Tangier	S	22	72
Beirut	S	28	82	Helsinki	C	8	46	Naples	–	—	—	Tehran	–	—	—
Belgrade	S	26	79	H. Kong	F	29	84	New Delhi	S	31	88	Tel Aviv	S	29	84
Berlin	C	13	55	Innsbruck	S	21	70	New York	F	11	52	Tenerife	–	24	75
Biarritz	C	19	66	Inverness	C	9	48	Nice	F	20	68	Tokyo	F	28	82
Blackpool	F	13	55	Istanbul	S	23	73	Oporto	C	18	64	Toronto	C	5	41
Bordeaux	C	18	64	Jersey	F	14	57	Oslo	R	9	48	Tunis	F	25	77
Brussels	R	15	59	Jo'burg	F	29	84	Paris	R	14	57	Valencia	S	26	79
Budapest	F	21	70	Las Palmas	F	25	77	Prague	C	12	54	Venice	F	18	64
B. Aires	F	20	68	Lima	C	20	68	Reykjavik	S	6	43	Vienna	C	13	55
Cairo	S	29	84	Lisbon	F	23	73	Rio de J'o	–	—	—	Warsaw	S	17	63
Cape Town	F	19	66	Locarno	F	18	64	Rome	C	20	68	Zurich	S	19	66
Caracas	R	27	81	London	S	15	59								
Casablanca	S	23	73	Los Angeles	Fg	19	66								
Copenhagen	F	13	55	Luxembourg	F	16	61								
Corfu	S	25	77	Madrid	S	19	66								
Dublin	S	12	54	Majorca	F	22	72								

Readings at mid-day yesterday:

C–Cloudy D–Drizzle F–Fair Fg–Fog H–Hail R–Rain S–Sun Sl–Sleet Sn–Snow T–Thunder

UK miners seek support

Continued from Page 1

visors' union, will today meet senior officials of the National Coal Board (NCB) and attempt to open up talks

The union, which gained an 82 per cent vote for a national strike in a ballot last week, is now attempting to intervene in the miners' dispute by forcing changes in the closure procedure *with a view to* achieving a settlement acceptable to the mineworkers as well as to its own 17,000 members.

Mr Kinnock was last night also fighting to prevent the defeat of proposals to permit all party members to vote in the re-selection of their local MPs after yesterday's decision by the Transport and General Workers' Union (TGWU) delegation to vote against in this afternoon's debate.

The outcome of the one member – one vote decision was last night looking finely balanced, although senior union leaders, including Mr Moss Evans, the retiring general secretary of the TGWU, thought it would narrowly pass.

The question has assumed a considerable symbolic importance both because of Mr Kinnock's personal involvement and because the centre/right leadership see it as a major step towards broadening Labour's popular appeal.

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SECTION II – COMPANIES AND MARKETS

FINANCIAL TIMES

Monday October 1 1984

Price Waterhouse
Business Needs Experts.

Hungary adds new life to syndicated loan market

BY MARGARET HUGHES IN LONDON

HUNGARY brought new life to the syndicated loan market on Friday with the award of a mandate for a $250m credit to a group of four banks: the National Westminster, acting as general agent, Fuji Bank, Orion Royal and Crédit Commercial de France.

The credit is a multi-currency facility that will include a tranche denominated in European Currency Units (Ecus). The margin will be 1 per cent above Eurodollar rates throughout the six-year term, with a three-year grace period.

The credit, which will go out to selective syndication this week, is being raised by the National Bank of Hungary to assist in the country's 1985 investment programme. Participating banks will be paid a commitment fee of ½ per cent.

It is the fifth Euromarket borrowing by Hungary this year. Most recently it became the first East European borrower to tap the Euronotes market raising $75m through a four-year facility. Earlier in the year it also became the first East European borrower to launch a bankers acceptance facility of $150m and has undertaken its second World Bank co-financing deal, worth $350m. Last year Hungary became the first borrower to use the new co-financing scheme where the World Bank participates directly in the syndicated loan.

The Soviet Union still appears keen for funds. Having raised some $800m already this year, the most recent being a DM 500m loan arranged by Commerzbank for Vneshtorgbank, the Soviet Foreign Trade Bank, another $100m credit is understood to be on the way. In the interim, Italy's second largest bank, Banca Commerciale Italiana, is understood to have agreed to extend an Ecu 30m medium-term loan to Vneshtorgbank.

The Soviet Union made its debut in the Ecu market only last month with an Ecu 75m issue led by Crédit Lyonnais, which provided further evidence of its recent move to diversify its borrowings. The Soviet Union has also tapped the Eurobond market for the first time this year. Further currency diversification is expected in future deals.

Elsewhere in Europe, Portugal's electricity authority, Electricidad do Portugal (EDP), has come to the market for $50m. The mandate for the seven-year loan, with a four-year grace period, has been awarded to a group of four banks – National Westminster, which will be acting as agent, Crédit Lyonnais, Fuji Bank and Union Bank of Switzerland. This will be a multi-currency facility of which $7m equivalent will be in Swiss francs, with the rest in a combination of sterling and Ecus. The margin will be ⅞ per cent above Eurodollar rates throughout.

The first big Euromarket borrowing by Co-operative Retail Services of the UK has proved a success, enabling the sterling credit to be increased from the original £30m to £50m. Bank of America and Co-operative bank led the issue.

Meanwhile, the $350m multi-pacility deal for another UK borrower, Britoil, has been completed with signing due for the middle of this month. Britoil is expected to make at least modest use of the new measure fairly soon, probably by tapping the Euronote issue facility. Thirteen banks, led by Citicorp, participated in the deal of which five, all U.S. banks, were in the original $400m credit which is being refinanced by this new triple-decker.

The other multi-facility deal in the market – the $1.5bn jumbo for New Zealand – was oversubscribed at underwriting level with 38 banks committing $1.86bn. However, the borrower does not want to increase the deal, and it went into general syndication at the weekend.

Another deal that will not be increased despite being substantially oversubscribed is the Ecu 50m Euronote issue for Irish Telecommunications, which is being handled by S. G. Warburg.

Deluge of fixed-rate issues

BY MAGGIE URRY IN LONDON

THE EURODOLLAR bond market was hit with another $890m of fixed rate bond issues last week. As usual, the pricing of a deal determined which path issues took.

The classic explanation given by an issue manager was "the crucial thing is the market's perception that the lead manager is prepared to support it."

That aside, the Ralston Purina and Commonwealth Bank of Australia issues were generally regarded as the best of the crop, both ending the week trading well inside their selling concessions. Friday brought a batch of three deals, all lead managed by Credit Suisse First Boston, and all traded inside their gross fees.

One of these was a 29-year zero coupon bond for General Mills. Traders believe that the proceeds will be used to buy the U.S. Treasury 12 per cent bond, which just happens to mature on the same day in 2013 as the zero, in stripped form. That way, they estimate, General Mills could pick up around 1¼ points of yield.

Merrill Lynch also launched a zero coupon bond, with a face value of $300m and a 10-year life for the Student Loan Marketing Association. Although listed in New York, the issue will be accepted by the Eurobond settlement systems, Euroclear and Cedel, and is expected to be mainly sold outside the U.S.

Despite the weight of last week's issues, and some from the week before, the Eurodollar bond market managed to remain stable over the week. The mood, however, is fragile. On Thursday and Friday morning, everything looked rosy with real demand for the recent issues reported. As New York turned down on Friday afternoon though, the atmosphere changed again. Even so, issue managers still expect more paper to appear this week.

The Eurosterling market was the place to be last week and the non-British houses must wish the Bank of England would let them lead some issues in the sector. The new issues were both great successes.

BHF Bank bond average		
Sept 28 100.624		Previous 100.548
High 100.624	1984	Low 98.056

ICI's convertible bond issue was increased from £75m to £100m on Friday, without the price wobbling from its 101½ bid level. The deal was cleverly structured, and looked attractive from both the borrowers and investors viewpoint. ICI is getting its funds much cheaper than it could in the domestic market. Even if the put option after five years at 112 is exercised, the cost of funds will have been a good point lower than the British Government's borrowing cost. Investors suffer a high, 20 to 25 per cent, conversion premium, but in return get the safety net of the 10.45 per cent yield to the put.

The Eurosterling floating rate note market has come on a lot in the last couple of years, and there has been quite a flurry of issues recently. In this market yields are always fixed over three-month London interbank rate (Libor), and it was a mark of the maturity of the market that last week Investors in Industry could borrow at a compound rate over only 21 basis points over Libor. That also was an increased issue, up from £60m to £75m.

Borrowers now realise it is as cheap to fund in sterling as dollars, and many FRN issues are connected with swaps back into dollars, or, as in 3i's case, into fixed rate funds.

The Samurai market is also hotting up. October's calendar, at Y125bn, is the largest yet seen. Nomura Securities has lined up 43 international banks and securities houses to underwrite the Bank of China's Y20bn 10-year issue.

Expanding role for co-financing deals

BY PETER MONTAGNON IN WASHINGTON

IT IS probably no coincidence that Mexico's return to the private capital markets last week for the first time since 1982 took the form of a co-financing deal with the Inter-American Development Bank.

Co-financing, in which commercial banks join with a development bank in lending for a specific project, is now clearly emerging as a useful mechanism for those countries which are back on the road to financial health. It has already been used extensively by Hungary. With Mexico now following that example, bankers are looking to its use by other countries too, as they find they no longer need to seek forced loans from their international banking creditors.

One of the reasons for this is that the association of a major development bank with a commercial loan gives banks that extra comfort of knowing the debt is more likely to be serviced on time.

The bank is in the middle of a pilot scheme of co-financing, which it expects will produce $1bn of deals arranged in the current fiscal year. The total experiment still has to be reviewed by its board and officials say they also meanwhile want to evaluate how co-financing would be applied to instruments other than bank credits, for example in the bond market or with interest rate swaps.

Bank officials say they have been pleased with the response to co-financing by banks in Japan, the Middle East and Europe.

They are now however, looking at ways of applying the concept to the international bond markets, which have been barred to most developing countries since the debt crisis struck two years ago.

NEW INTERNATIONAL BOND ISSUES

Borrowers	Amount m.	Maturity	Av. life years	Coupon %	Price	Lead Manager	Offer yield %
U.S. DOLLARS							
Takeda Riken §	40	2000	15½	(3¼)	•	Nippon Kangyo Kakumaru	•
Accor §‡	40	1999	14¼	7½	100	Morgan Grenfell	7.500
Ralston Purina ‡	100	1989	5	12¾	99¾	Goldman Sachs, CSFB, Salomon Bros.	12.821
Southern California Gas Co. ‡	60	1991	7	12¾	99¾	S. G. Warburg	12.806
Commonwealth Bk. of Australia ‡	100	1989	5	12⅜	100	CSFB, Merrill Lynch, Deutsche, SBCI, UBS (secs)	12.375
Kansai Electric Power ‡	100	1989	5	12½	100	Nomura Int., IBJ Int.	12.500
Borden Inc. (d) ‡	100	1987	3	12½	100	Morgan Stanley, Salomon Bros.	12.500
Mitsui Trust Fin. (HK) ‡	100	1989	5	12⅞	99¾	CSFB, Mitsui Trust (Europe), Banque Paribas, Man. Hanover, Morgan Stanley	12.946
Bankers Trust N. Y. Corp ‡	150	1989	5	12⅝	99¾	Bankers Trust Int., CCF, CSFB, Lehman Bros. Int., UBS (secs), S. G. Warburg	12.696
Export Development Corp ‡	100	1989	5	12	100	CSFB	12.000
General Foods ‡	80	1989	3	12	100	CSFB, Salomon Bros.	12.000
General Mills ‡	1000	2013	29	0	4.80	CSFB, Daiwa Europe, Dresdner Bank	11.14
SWISS-FRANCS							
Korea Dev. Bank	100	1989	–	(6¾)	99¾	CS, SBC, UBS	•
Santos ‡	130	1994	–	6	99½	Handelsbank	6.068
Nissho Iwai **§‡	100	1990	–	2⅞	100	SBC	2.876
Shin-Etsu Chemical **§‡	30	1990	–	2	100	UBS	2.000
Takeda Riken **§	30	1990	–	(2⅞)	100	CS	•
Nippon Tel. and Tel. ‡	100	1994	–	5⅜	99½	CS	5.441
Aoki Const. **	100	1990	–	(2¼)	•	Swiss Volksbank	•
Sankyo Seiki Man. §	100	1990	–	(2⅞)	•	SBC	•
SWISS FRANCS							
National Provident Board of N. Z. **‡	150	1990	–	5¾	100	Citicorp (Switzerland)	5.750
Spain **‡	75	1991	–	6⅜	100	Man Han (Suisse)	6.375
Long Term Bk. of Japan ‡	120	1994	–	5⅞	100	SBC	5.825
New Zealand Steel Devlt. (c)	50 (min.)	1996	–	(⅞)	•	Banque Gutzwiller K. B.	•
Dai-Ichi Seiyaku	50	1990	–	(2⅛)	•	CS	•
GUILDERS							
ABN **‡	150	1989	5	7¾	100	A.B.N.	7.750
BELGIAN FRANCS							
World Bank ‡	3bn	1990	6	11½	100	Soc. Gen. De Banque	11.500
ECUs							
EIB ‡	50	1990	6	10¾	100½	Kredietbank Lux.	10.633
EIB ‡	50	1994	10	11¼	100¼	Kredietbank Lux.	11.207
E.C.S.C. ‡	50	1994	10	11¼	100	Banco Commerciale Italiana, Bancario San Paolo, Kredietbank Int.	11.250
Privatbanken ‡	35	1991	7	11¼	100	Kredietbank Lux.	11.250
D-MARKS							
Rabobank ‡	200	1994	10	7⅝	100	DG Bank	7.625
Mortgage BK. of Denmark **‡	100	1991	7	7⅞	100	Commerzbank	7.875
STERLING							
I.C.I. (p) §‡	100	1999	15	8½	100	Schroder, S. G. Warburg	8.500
Investors in Industry (b)†	75	1994	10	⅛	100	S. G. Warburg	–
YEN							
Eurofima ‡	20bn	1994	9	7.4	99.60	Daiwa Secs.	7.59

* Not yet priced. ‡ Final terms. ** Private Placement. § Convertible. † Floating-rate note. (a) Put after 5 years at ‡112. (b) Spread over 3-month Libor. (c) Spread over yield on 5-year swiss confederation bonds refixed after 6 years. (d) Extensible to 1996, coupon reset after 3 years.
Note: Yields are calculated on AIBD basis.

INTERNATIONAL CAPITAL MARKETS AND COMPANIES

U.S. BONDS

Rollercoaster prices reflect renewed investor caution

THE POLICY-MAKING Federal Open Market Committee (FOMC) meets tomorrow to determine the Federal Reserve's monetary policy against the backdrop of rapidly shifting market perceptions and highly volatile prices.

Last week bond prices rode a rollercoaster and ended on a downward slope reflecting renewed investor caution about the economy, interest rates and Fed policy. By the close on Friday, the Treasury long bond was ⅜ lower on the week at 101⅛—wiping out all the gains of a mid-week rally.

The fall in the long bond price came despite a sharply reduced Fed funds rate, a decline in the bank prime rate to 12.75 per cent from 13 per cent, and short-term money market rates down by between 5 and 35 basis points.

This sharply contrasted picture primarily reflects the uncertainties of a thin market in transition — unsure about the meaning of recent events and equally confused about the future.

There is now almost unanimous agreement that the Fed eased slightly at the start of September, yet that move is now seen—particularly in the light of recent banking figures—as being marginal, probably temporary, and possibly still "technical" in the Fed's view.

Similarly, while there is little disagreement that the pace of economic expansion has indeed slowed, there is renewed concern about the implications of an expected autumn pick-up in economic activity and about the possibility of a credit clash between the competing and higher demands of the private and public sectors.

In this light, the current pronouncements from Wall Street's senior economists and Fed-watchers are notably cautionary.

Dr Henry Kaufman of Salomon Brothers notes that the FOMC meeting faces a set of factors markedly different from the generally positive ones which confronted it when it last met in August. In the light of these new factors, he suggests that "The Fed can probably afford to maintain its current policy stance while it assesses fresh information on economic and financial market development around the world."

Like other market analysts Dr Kaufman notes that credit demands by non-financial sectors have remained substantial. While volume in the U.S. domestic corporate bond market has settled back from August's record-breaking pace—in part offset by a tremendous surge in U.S. corporate bond issuance overseas—short-term corporate financing has accelerated once more, as indicated by the $1.64bn increase to $242.64bn in business loans outstanding at the nation's large banks.

What is more, Wall Street's economists see black news for the markets in the unprecedented bunching of Treasury issues due to the delay in passage of new debt ceiling legislation. As Mr David Jones of Aubrey Lanston says "the total offerings of new coupon issues between October 10 and November 8 will total a whopping $43bn, with $25.9bn of this representing new money.

The markets will pay close attention particularly to the Fed funds rate, as well as to the August FOMC meeting report, due out on Friday, which some market watchers like Mr Philip Braverman of Briggs Schaedle see as a potential threat because they could reveal "that the easing from the Fed's point of view is largely technical." Investors will also be watching the economic statistics for any signs of a pick-up.

Corporate bond prices reflected the same uncertainties last week. Active medium-term issues rose by about ¼ points while long-term issues declined by ½ points.

Paul Taylor

U.S. INTEREST RATES

	Week to Sept 28	Week to Sept 21
Fed funds wkly av ...	10.73	11.46
3-month CDs	10.95	11.22
3-month T-bills	10.21	10.28
30-year long bonds .	12.17	12.13
AAA utility	13.38	13.25
AA industrial	13.13	13.00

Source: Salomon Bros (estimates). Money supply: In the week ended September 17 M1 fell by $3.4bn to $549.6bn.

Sun King Fung asks for reorganisation of debts

BY DAVID DODWELL IN HONG KONG

SUN KING FUNG, the ailing Hong Kong property group controlled by Mr Fung King-Hey, revealed this weekend that it was trying to reorganise its debts with bank lenders.

The company said it suffered net losses for the six months to June 30 of over HK$143m (US$15m) with net liabilities HK$8m higher than net assets. Trading in the company's shares has been suspended since August 31, and no interim dividend is to be paid.

Sun Hung Kai Securities once held a controlling interest in Sun King, but this was sold to Mr Fung in March last year. Sun King incurred most of its losses when Hong Kong's property market crumbled in 1982.

At the time Mr Fung acquired his controlling stake, he together with Merrill Lynch and Paribas lent the group HK$380m. At the end of June, long-term liabilities stood at HK$188m, with accumulated losses touching HK$778m.

The half-year deficit, which compares with an interim loss last year of HK$26m, was largely due to an exceptional loss of HK$136m linked with development projects in which subsidiaries were participating.

The company said no provisions had been made against the carrying values of properties under development (amounting to about HK$184m), or for contingent liabilities arising from the company being guarantor for a project in which it has a 16 per cent interest. Further provisions will have to be made at the year end, it said.

Standard Chartered Asia has been appointed financial adviser, and submissions have been made to bank creditors to reorganise the company's debts. If the banks agree in principle, detailed proposals will be put before shareholders. Meanwhile, the suspension in share dealings will continue.

Lloyds regroups in Germany

BY JOHN DAVIES IN FRANKFURT

LLOYDS BANK of the UK has taken the first major step towards merging most of its West German operations after its takeover of Schroeder Muenchmeyer Hengst (SMH), the private bank, earlier this year.

The Hamburg office of Lloyds Bank International (LBI) has been closed and its trade finance business and staff are to be transferred to the SMH office in Hamburg.

A larger merger will take place towards the end of the year in Frankfurt, and LBI's offices in Duesseldorf, Munich and Stuttgart will be brought into the SMH group by the end of next year. LBI is, however, to retain a separate foreign currency dealing unit.

Lloyds sees SMH as its main vehicle in building its banking business in West Germany.

Renault to tighten grip on AMC

By Our Financial Staff

RENAULT, THE French state-owned motor manufacturer which is facing heavy losses and further job cuts this year, is to tighten control of American Motors (AMC), its 46 per cent-owned U.S. affiliate.

Mr Jose Dedeurwaerder, who was installed by Renault three years ago as president of AMC, has taken on the additional title of chief executive, though Mr Paul Tippett remains as chairman.

Renault has also confirmed that it is considering changing the name of AMC, the fourth largest U.S. motor group, as a result of an outside market research study.

Renault expects to sell some 400,000 AMC and Renault cars in the U.S. this year and is aiming for 600,000 by 1987. In 1986 it will market the new Espace leisure van in the U.S., exporting around half of an initial production of 40,000 units.

M Bernard Hanon, Renault's chairman, is expected this week to unveil the group's strategy and prospects at the Paris Motor Show against a background of continuing industrial unrest at its plants in France.

Petro-Lewis in the red after write-offs

BY WILLIAM HALL IN NEW YORK

PETRO-LEWIS, the troubled Denver-based marketer of partnerships in the U.S. oil and gas business, lost $33.4m in the year to June compared with net profits of $32.8m in 1982-83.

The group, which has been hit by the slump in the U.S. oil and gas business, reported revenues down by nearly one-fifth to $302.4m. In its final quarter, Petro-Lewis made a $35.9m net loss on revenues more than one-third lower at $62.5m.

Earnings were hit by a $78.8m write-off of non-recurring items. These included $14.6m of costs on the cancellation of an oil and gas partnership offering, a $32m provision for the settlement of class action suits against the company and a $24.6m provision for losses on long-term leases on excess office space.

The group has reduce its workforce sharply over the past 12 months.

Security Pacific lifts reserves

LOS ANGELES — Security Pacific, the U.S. West Coast bank, is to make substantial additions to its reserve for credit losses in recognition of the continued uncertainty of its loans to developing countries.

The additions will substantially offset a gain in the third quarter from the sale of its 55-storey headquarters building here to Metropolitan Life Insurance for $310m in cash.

Security Pacific will remain the primary tenant of the building, where it will maintain its world headquarters.

The company said it will realise an after-tax gain from the sale of about $125m, of which about $75m will be recognised in third-quarter earnings.

Mr John Kookin, Security Pacific's chief financial officer, said the company had a loan loss reserve of about $354m at the end of June which would be increased by about $150m, with an after-tax affect of about $75m.

Reuter

Another outsider for Crocker

By Paul Taylor in New York

CROCKER NATIONAL CORPORATION, the loss-plagued U.S. banking group 57 per cent-owned by Midland Bank of the UK which is seeking full control through a stock-swap, has brought in another outsider, Mr Jeffrey Mobry, an executive vice president in charge of treasury and investment banking at Bank of Boston, to lead the world banking group, one of three key Crocker banking groups.

The appointment completes a major management reorganisation at the holding company and in its Crocker National Bank unit prompted by massive losses at the bank and Midland's decision to take a more active role in its West Coast subsidiary.

Mr Mobry, aged 47, joins several other senior executives recruited to Crocker this year including Crocker's new chairman, Mr Frank Cahouet, who was recruited from the rival Security Pacific banking group.

In his new job Mr Mobry, who has extensive international banking experience including a period as head of Bank of Boston's Latin American operations, will be responsible for Crocker's corporate banking, merchant banking, and money market divisions. He will be one of three vice chairmen of both the bank unit and the holding company. Before joining Bank of Boston in 1969 Mr Mobry was manager of central Europe for Hughes Aircraft Company.

INTERNATIONAL APPOINTMENTS

● Leading microcomputer software publisher Ashton-Tate, of Culver City, California, has restructured the company into three separate operating divisions—the software products group, Ashton-Tate International and new business development. In a related move, **Mr David C. Cole**, who has been president and chief executive officer of Ashton-Tate since February 1982, has been appointed chairman, a position left vacant since the recent death of Ashton-Tate co-founder and chairman **Mr George Tate**. Mr Cole will retain his role as chief executive officer. **Mr Edward M. Esber** has been appointed president and chief operating officer.

Mr Ronald S. Posner, a member of Ashton-Tate's board, will remain as acting vice-president, Ashton-Tate International and also will serve as the division's acting general manager. The new business development division will be headed by **Mr Lawrence Benincasa**, vice-president and general manager. **Mr Norman H. Block**, executive vice-president, finance and administration, will continue to be responsible for many corporate functions, including corporate finance, legal services, human resources and corporate information. He was executive vice-president, finance and operations. Appointed to the board is **Ms Jill Weissman-Tate**, formerly distributor sales manager. **Mr C. Wayne Ratcliff** has been named chief scientist. He was vice-president, new technology, and wil serve as the chairman of the company's new technology committee.

● **Mr Alexander C. Baker, Mr Timothy J. Blair** and **Mr Charles W. Patterson** have been elected senior vice presidents of FIRST CITY NATIONAL BANK OF HOUSTON. Mr Baker is department manager of corporate trust; Mr Blair is department manager of special assets in First City's trust division; and Mr Patterson is a group manager in First City's energy division.

● THE ROYAL BANK OF SCOTLAND has appointed **Mr Kenneth M. Urquhart** as manager of its Hong Kong branch and senior representative at its South East Asia representative office in Hong Kong from October 1. He has been manager of the bank's international division, London office, for the past year and, in taking over at Hong Kong, succeeds **Mr Joseph Collin** who has returned to Scotland.

● **Mr David Seaman**, appointed European sales manager in 1982, has been promoted to the Boston-based post of regional director, eastern region (U.S.), for

● **Mr George D. Norton** has been named to the new position of vice-chairman of CORESTATES BANK OF DELAWARE NA. He continues as executive vice-president of the parent CoreStates Financial Corp and of its principal banking subsidiary, the Philadelphia National Bank. He will have responsibility for organising and co-ordinating new services at the Delaware bank, which was established in 1982 to conduct the parent corporation's consumer credit card business.

● COMSAT Technology Products, Inc has elected **Mr Carl A. Washenko** as the company's new vice-president of human resources.

● NORSTAR BANCORP has elected **Mr Robert F. Macfarland** as executive vice-president of the company's newly-created banking division from October 1. Norstar is a $7.2bn regional bank holding company with eight member banks in New York State and Maine. Mr Macfarland currently is chairman and chief executive officer of Norstar Bank of Long Island, a member bank.

● **Mr F. E. Thompson** has become representative, Colombia, LLOYDS BANK INTERNATIONAL, based in Bogotá. He was vice-president, Mexico and Venezuela, regional management, North America division, in New York. **Mr N. C. Grose-Hodge** has been made manager, Lima branch, Peru, Bank of London and South America. He was representative, Lloyds Bank International, Colombia, in Bogotá. **Mr C. E. Demaria** has been appointed principal manager, Uruguay, Bank of London and South America, based in Montevideo. He was previously manager, Lloyds Bank International, Milan, Italy. **Mr J. A. K. Erskine** has become manager, Milan branch. He was previously senior assistant manager in Milan. **Mr D. S. Smalles**, currently regional manager at Sao Paulo branch, has been appointed principal manager, Portugal, Lloyds Bank International, based in Lisbon, from October 22. **Mr D. E. Reid** is the first manager of Braga branch, Lloyds Bank International, Portugal. He was sub-manager, Oporto. **Mr M. G. Airey** becomes regional manager, Latin America division, at Lloyds Bank International, head office, London. Lately he has served as assistant manager, Buenos Aires branch, Argentina, Bank of London and South America.

● CITICORP and Citibank's boards have elected **Mr Colby H. Chandler**, chairman of Eastman Kodak Company, and **Mr James D. Farley**, a senior Citicorp executive, to the boards of the corporation and its chief subsidiary, Citibank, N.A.

FT INTERNATIONAL BOND SERVICE

U.S. DOLLAR STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Alaska Housing 11¾ 94	100	94⅞	95⅛	+0⅛	−0⅛	12.68
All Nip. Airways 14 94	100	109⅛	109⅝	+0⅛	0	12.28
American Savings 12 89	125	96⅛	96⅝	0	−0⅛	13.02
American Sav. 12½ 89...	100	97⅛	97⅝	0	−0⅛	12.95
Austrian Rep. 13⅝ 92...	100	102⅞	103⅜	−0⅛	+0⅛	12.93
Bank of Tokyo 13⅝ 91	100	102⅛	102⅝	−0⅛	−0⅛	13.04
CNCA 13¼ 91	100	99⅜	99⅞	−0½	−0½	13.30
Caisse Nat. Tel. 13⅝ 91	100	103	103½	0	+0⅛	12.96
Coastled Int. 12¼ 88...	125	98⅛	98⅞	−0⅛	+0⅛	12.88
Creditanstalt 13⅛ 91 ...	100	99½	100	0	0	13.14
Denmark Kgdm. 13 91	100	99	99½	0	+0⅛	13.13
Denmark 13⅞ 88 XW...	100	102	102½	+0⅛	+0⅛	13.07
Denmark Kgdm. 14 91...	100	104⅛	104⅝	+0⅛	−0⅛	12.93
EIB 12½ 90	100	98⅜	98⅞	−0⅛	+0⅛	12.81
EIB 12⅞ 94	100	99⅞	100⅜	0	+0⅛	12.82
EIB 13 96	200	99⅛	99⅝	−0⅛	+0⅛	13.10
Ex-Im Bk. Japan 13⅛ 91	75	103	103½	+0⅛	+0⅛	12.47
Fst. Mich. 13⅞ 89 May	125	101⅜	101⅞	+0⅛	0	12.73
Fst. Mich. 13⅛ 89 July	75	101⅛	101⅝	+0⅛	−0⅛	12.81
Florida Fedl Sv. 12¾ 89	100	98⅜	98⅞	0	+0⅛	12.73
Gen. Elec. Credit 0 96	600	29⅝	30⅛	+0⅞	+1⅛	10.80
Genossen Zentral 14 91	100	102⅝	103⅛	0	−0⅞	13.26
GMAC O/S Fin. 13 86	200	101⅛	101⅝	+0⅛	−0½	11.92
IBM Credit Cpn. 11⅜ 87	200	98⅞	99⅜	0	+0⅛	12.11
Ind. Bk. Japan 11½ 89	125	95	95½	−0⅛	−0⅛	12.92
Ind. Bk. Japan 13⅞ 91	125	107⅜	107⅞	−0⅛	−0⅛	12.13
Japan Air Lines 12½ 94	70	101⅞	102⅛	+0⅛	+0⅛	11.62
Japan Air Lines 13⅜ 94	180	104⅜	104⅞	0	−0⅛	12.51
LTCB 13⅜ 91	125	103⅛	103⅝	0	−0⅛	12.80
Macy O/S 11⅞ 91	100	96⅛	96⅝	+0⅛	−0⅛	12.68
Mitsui Trust Fin. 12 91	100	95	95½	0	−0⅛	13.10
Montagu 13¼ 91	100	101⅜	101⅞	0	−0⅛	12.89
Montreal City 12½ 91...	70	95⅞	96⅜	+0⅛	−0⅛	13.41
Mrgn. Guaranty 12¼ 89	150	96⅞	97⅜	0	−1	13.11
Newfndlnd. Prov. 13 91	75	99⅝	100½	0	−0½	12.92
Nippon Cred. B. 13⅞ 89	100	102⅝	102⅞	+0⅛	0	13.06
Nippon Tele. 11⅜ 90 ...	100	98	98½	−0⅛	−0⅛	11.79
Nova Scotia Pr. 11⅝ 91	100	95⅛	95⅝	+0⅛	−0⅛	12.82
Ontario Hydro 11⅜ 94...	200	94⅞	95⅜	−0⅛	−0⅛	12.83
Quebec Hydro 11½ 92...	100	†93¼	93¾	0	−1⅛	12.81
Quebec Prov. 12¾ 94 ...	150	96⅜	96⅞	0	−1	12.86
Rockefeller Gp. 13⅝ 89	100	102⅞	103⅜	0	−0⅛	12.30
Royal Bk. Can. 11½ 89	100	95⅛	95⅝	0	+0⅛	12.90
Sears O/S Fin. 11⅝ 91	150	95⅞	96⅜	+0⅛	−0⅛	12.51
S. Pac. O/S Fin. 12 92	100	93⅞	94⅜	+0⅛	0	13.28
SEK 0 94	250	29⅜	29⅞	0	−0⅛	13.00
SEK 11½ 89	100	94⅞	95⅜	−0⅛	−0⅛	13.03
Shearson/Amex 12⅛ 94	100	94⅛	94⅝	+0⅛	0	13.14
Statoil 12 88	100	98⅞	99⅜	+0⅛	−0½	12.26
Statoil 13½ 89	100	103½	104	0	−0⅛	12.39
Sumitomo Fin. 12¾ 91...	150	97⅞	98⅜	0	−0⅛	13.16
Swedan Kngdm. 12⅜ 89	200	98⅜	98⅞	0	+0⅛	12.66
Texaco Capital 12⅞ 87	300	99⅞	100⅜	0	+0⅛	12.80
Texaco Capital 13½ 89	200	102⅜	102⅞	0	−0⅛	12.71
Texas Insts. Int. 11⅞ 91	150	96⅛	96⅝	+0⅛	−0⅛	12.66
Tokyo Met. 12⅞ 94	50	99⅝	100⅛	0	−0⅛	12.88
World Bank 11⅜ 89 ...	200	95⅞	96⅛	0	0	12.62
World Bank 12⅞ 94 ...	200	99⅜	100⅛	0	+0⅛	12.97
Yasuda T. & F. 12⅛ 89	100	96½	97	0	+0⅛	13.32

Average price changes... On day +0⅛ on week 0

DEUTSCHE MARK STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Allied Chemical 7½ 94	125	100⅜	100⅞	+0⅛	−0⅛	7.41
Amca Intl. 8¼ 91	100	101⅜	101⅞	0	+0⅛	7.96
ANAS 8½ 91	150	101⅜	102⅛	+0⅛	+0⅛	8.12
Austria Republic 7¾ 94	200	98⅛	99	−0⅛	+0⅛	7.83
Baxter Travenol 7¾ 94	200	99½	99¾	+0⅛	0	7.41
Credit National 8¼ 94...	200	100⅜	101⅛	0	−0⅛	8.00
Degussa Int. Fin. 7½ 94	100	102½	102⅞	+0½	+1	7.12
EEC 8 92	200	100½	101¼	−0⅛	−0⅛	7.83
EIB 8 91	250	100⅜	101⅛	0	−0⅛	7.85
ESCOM 8 92	150	99	99½	0	0	8.12
Ferrovie Dello St. 8 91	100	100⅜	100⅞	0	+0⅛	7.88
Finland Rep. 7½ 91 ...	150	98⅛	98⅝	−0⅛	−0⅛	7.70
Gould Int. Fin. 7¾ 91...	100	99⅞	100½	0	+0⅛	7.59
Int. Standard Ele. 7¾ 90	100	101⅞	102⅜	+0⅛	+0½	6.86
Ireland 8¼ 92	150	100	100⅛	+0⅛	0	8.04
Japan Fin. Corp. 7⅝ 91	100	100⅞	101⅝	−0⅛	−0⅛	7.37
Megal Fin. 8¼ 94	150	100⅛	100⅝	+0⅛	−0⅛	8.16
Mitsbshi. H. 3½ 89 WW	300	101⅜	101⅞	0	−0⅛	3.13
Mitsbshi. H. 3½ 89 XW	300	89⅞	90⅜	0	−0⅛	6.03
OKB 7½ 88	100	99⅝	100⅛	0	−0⅛	7.49
Pepsico O/S Fin. 7¼ 94	250	100⅛	100⅞	+0⅛	+0⅛	7.17
Reynolds O/S F. 7¾ 94	125	100⅜	101⅛	−0⅛	−0⅛	7.34
Soc. Cent. Nuclear 8 91	100	101⅛	101⅞	+0⅛	+0⅛	7.70
Sth. Africa Rep 8½ 91	200	101⅝	102⅜	+0⅛	+1	8.11
World Bank 7¾ 89	100	99⅞	100½	0	0	7.70
World Bank 8 94	200	101⅜	101⅞	+0⅛	0	7.76

Average price changes... On day +0⅛ on week 0

SWISS FRANC STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Asian Dev. Bank 6¾ 94	100	†100⅜	101	+1	−0⅛	6.13
Canada 5¼ 92	200	†100	100⅛	0	+0⅛	5.22
Consd Foods 5¾ 94 ...	200	†102	102⅛	−0⅛	−0⅛	5.46
Consd. Press 6¼ 94......	200	†100⅛	100⅛	0	−0⅛	6.15
Credit Foncier 6 94..	120	†100⅛	101	0	0	5.88
Electric Power 6¼ 94 ...	100	†100⅛	101	+0⅛	+0⅛	5.63
Euratom 6¼ 94............	90	†102	102⅛	0	+1	5.95
FGH 5¾ 92..................	110	†98⅞	98⅜	0	0	5.97
GO Int. 6½ 92	70	†102	102⅛	0	+0⅛	6.39
Int. Am. Dv. Bk. 6¼ 94	120	†101½	101⅛	0	+0⅛	6.02
Japan Fin. Corp. 5¾ 94	100	†98	98⅛	+0½	0	5.76
Japan Highway 5½ 92 ..	150	†98	98⅛	0	+0½	5.68
Kansai Ele. Pwr. 6⅛ 92	100	†102	102⅛	−0½	−0⅛	5.77
Manitoba Prov. 5⅝ 94...	100	†101½	101⅜	−1	−0½	5.52
Mitsui Fin. Asia 5⅞ 94	55	†99	99⅛	0	+0⅛	5.99
Mount Isa Fin. 5¾ 94 ..	100	†99	99⅛	0	0	5.87
New Brunswick 5¾ 94	100	†101	101⅛	0	+0⅛	5.47
Quebec Hydro 5⅞ 94...	150	†102½	102⅛	0	0	5.52
Statsforetag 6 92.........	75	†101½	101½	0	0	5.77
Sweden Kingdom 5¾ 94...	125	†100⅛	101	−0½	−0⅛	5.62

	Issued	Bid	Offer	Change on day	Change on week	Yield
Tauernkraftwerke 5½ 94	100	†98½	98¾	−0½	−1⅛	5.68
Tobu Railway 4 92 WW	100	†97¼	97½	+0⅛	0	4.41
Tobu Railway 4 92 XW	100	†86⅜	87	0	−0⅛	6.21
Transcanada Pipe 5½ 92	100	†98⅜	99	0	0	5.68
World Bank 6⅛ 94	200	†101⅜	102	−0½	−0⅛	5.87

Average price changes... On day −0⅛ on week 0

YEN STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Asian Dev. Bank 7⅛ 94	15	98⅞	99⅜	+0⅛	+0⅛	7.46
Eurofima 7⅛ 94	10	99½	100	+0⅛	−0⅛	7.40
New Zealand 7⅛ 90 ...	15	98⅜	98⅞	0	0	7.46
World Bank 7 94	20	95⅜	95⅞	0	0	7.65
World Bank 7⅝ 93	20	100½	101	+0⅛	−0⅛	7.50

Average price changes... On day +0⅛ on week 0

OTHER STRAIGHTS	Issued	Bid	Offer	Change on day	Change on week	Yield
Bq. Indosuez 14 91 C$	75	†100⅞	101⅜	+0⅛	−0½	13.71
Canadn. Oc. 12¾ 89 C$	80	†95⅞	96⅜	0	−0⅛	12.95
CNE 13 93 C$	50	†97⅛	97⅝	+0⅛	−0⅛	13.48
Edmonton 13⅜ 89 C$ ...	50	†101½	102	+0⅛	−0⅛	13.23
Quebec Hydro 14 91 C$	75	†103½	104½	+0⅛	−0⅞	13.04
Sears Accept. 14 91 C$	50	†105⅝	106⅛	+0⅛	−0⅛	12.62
Vancouver C. 13 94 C$	30	†100⅜	101⅛	+0⅛	−1	12.73
Winnipeg C. 12¾ 91 C$	50	†98⅜	99⅛	0	−0⅛	13.09
EEC 11¼ 91 Ecu	50	104⅛	105	−0⅛	0	10.24
IBJ 11¼ 89 Ecu	40	103⅜	104⅛	0	+0⅛	10.15
IIJ 11 89 Ecu	60	100	100⅜	−0⅛	+0⅛	10.88
Aegon 8¼ 89 Fl	100	101½	102	0	0	7.78
Beatrice Foods 8¼ 89 Fl	100	103⅛	103⅝	0	0	7.35
Dai-Ichi 8½ 89 Fl	50	100⅜	100⅞	+0⅛	+0⅛	8.33
New Zealand 8¼ 89 Fl	100	100½	101	+0⅛	+0⅛	8.04
Rank Xerox F. 8¼ 89 Fl	75	102⅜	102⅞	−0⅛	+0⅛	7.55
World Bank 8¼ 89 Fl. .	150	100⅝	101⅛	+0⅛	0	7.96
Charbnags. 13⅞ 85 FFr	400	101⅝	102⅛	+0⅛	+0⅛	11.78
Air Canada 11¼ 94 £...	40	95⅞	96⅜	0	−0⅛	11.82
CNCL Europe 11⅜ 92 £	50	97	97½	+0⅛	+0⅛	11.52
Denmark 10⅜ 89 £	75	85½	86	0	+0⅛	11.98
Denmark 11⅞ 94 £	75	97⅞	98⅜	0	+0⅛	12.21
EEC 11⅜ 94 £	50	97⅝	98⅛	+0⅛	+0⅛	11.71
EIB 10⅜ 92 £	50	94⅛	94⅝	0	+0⅛	11.88
IBJ 11⅜ 95 £	30	99⅛	99⅝	0	+0⅛	11.71
Ireland 11⅜ 94 £	50	94⅛	94⅝	−0⅛	0	12.38
New Zealand 10⅞ 89 £	100	95⅜	95⅞	0	−0⅛	11.91
OKB 12¼ 91 £	30	102⅜	102⅞	+0⅛	+0⅛	11.63
Royal Trustco 12⅛ 89 £	30	103⅛	103⅝	−0⅛	+0⅛	11.24
SNCF 11⅞ 94 £	60	94½	94⅞	0	+0⅛	12.21
S. Africa Rep. 12½ 89 £	40	†100⅛	100⅝	0	−0⅛	12.32
United Tech. 11⅜ 89 £	35	100⅞	101⅜	0	+0⅛	11.44
World Bank 10⅝ 89 £	100	95⅛	95⅝	0	−0⅛	11.92
Electrolux 10 89 LuxFr	500	98⅞	99⅜	0	−0⅛	10.23
ECSC 10½ 94 LuxFr ...	100	98⅞	99⅜	0	0	10.62

FLOATING RATE NOTES	Spread	Bid	Offer	C.dte	C.cpn	C.yld
BBL Int. 5 99	0⅛	99⅛	99⅝	11/10	11.19	11.27
Banca Naz. Agri. 5¾ 91	0⅛	†99½	99⅞	19/2	12⅞	12.92
Bank of Montreal 5 96	0⅛	100	100⅛	27/10	11.19	11.17
Bankers Trust 5⅛ 96 ...	0⅛	100	100⅛	10/8	11⅝	11.74
Barclays O/S In. 5 2004	0⅛	99½	99⅞	2/9	10.56	10.60
BFCE 5⅛ 99	0⅛	99⅝	99⅞	13/3	12.19	12.25
BFG Fin. 5⅛ 96	0⅛	99⅛	99⅝	1/9	11⅞	11.96
BNP 5⅛ 96 (July)	0⅛	100⅛	100⅜	21/1	12.94	12.91
Citicorp O/S Fin. 5⅛ 96	0	99	99½	23/10	5⅛	5.29
Credit Lyonnais 5⅛ 96	0⅛	100⅛	100⅜	14/12	12⅝	12.59
Dai-Ichi Kangyo 5⅛ 96	0⅛	99½	100	10/11	12⅛	12.16
Dresdner Fin. 5⅛ 89 ...	0	99⅝	99⅞	23/8	11⅝	11.66
EDF 5⅛ 99	0⅛	99½	99⅝	23/8	10.56	10.60
Gotabanken 5⅛ 94	0⅛	98⅞	99⅛	10/11	12.19	12.31
Lloyds Euro. 5 2004 ...	§0⅛	99⅝	99⅞	18/10	11.31	11.40
Midland Int. Fin. 5 99	§0⅛	99½	99⅞	6/9	10.56	10.60
Mr. Bk. Denmark 5⅛ 99	§0⅛	99⅞	100⅛	11/8	11	11.00
Nat. West. Perp. 5 89...	0⅛	100	100⅛	10/11	12.44	12.42
Queensland Coal 5⅛ 96	0⅛	100⅛	100⅝	9/11	11⅝	11.58
Societe Gen. 5⅛ 94 ...	0⅛	99⅞	100⅛	15/9	10.18	10.18
Sweden Perp. 5⅛ 85 ...	0⅛	100⅛	100⅝	9/2	13⅛	13.20
Takugin 5⅛ 94	§0⅛	99½	100	15/9	10⅝	10.78
Tokai 5⅛ 93	0⅛	100	100⅛	12/12	12½	12.47
Toyo 5⅛ 99	0⅛	100⅛	100⅝	14/12	12⅝	12.58

Average price changes... On day 0 on week +0⅛

CONVERTIBLE BONDS	Cnv. date	Cnv. price	Bid	Offer	Chg. day	Prem
Ajinomoto 3 99	4/84	1159	96⅛	97	+0⅛	12.33
Daiwa Sec. Co. 5½ 98...	10/83	481.8	†110½	111½	+3	3.28
Fanuc 3⅜ 98	1/84	9142	165⅝	158⅝	−0⅞	29.51
Fujitsu 3 99	5/84	1320	105⅛	106⅛	−0⅞	1.43
Honda Motor 5⅛ 98	6/83	894	144⅝	145⅝	−2½	−0.43
Konishiroku Ph. 4 98 ...	10/83	873	89⅛	89⅝	−0⅛	3.28
Marui 3½ 99	7/84	1162	95	95⅝	−0⅛	0.30
Minebea Co. 5½ 98......	5/83	667	105⅛	106⅛	−0⅞	3.16
Mitsubishi Elec. 6⅛ 98	6/83	396	110⅛	111½	−0⅞	3.75
Murata 3⅞ 99	2/84	2939	127⅛	128	−1⅜	21.84
Murata 3⅛ 2000	7/84	2398	123⅝	124⅛	−1⅞	−2.70
Nippon Oil Co. 3⅛ 99...	3/84	1052	90⅛	87⅛	−0⅛	0.58
Nippon Oil Co. 5½ 98...	4/83	964	90⅛	90⅞	−0⅛	1.66
Nissan Motor 5¼ 98 ...	4/83	700	89⅞	90⅜	−0½	8.50
OKI Elec. Ind. 3½ 99 ...	10/84	805	103⅛	104⅛	−0⅛	0.96
Orient Leasing 5⅛ 98...	6/83	2680	129⅛	130½	+3⅛	−1.92
Secom 3⅛ 99	10/84	6434	103⅞	104⅛	−0⅛	4.87
Secom 5 98	11/83	2929	†172	173	−2	−3.19
Sekisui House 3 99	6/84	612	89⅞	90⅛	0	1.08
Sumitomo Cpn. 2⅞ 99...	5/84	583	76⅝	77⅛	0	−2.92
Yamanouchi Ph. 4 90...	10/83	1483	102⅛	103	+1⅛	2.33
Nippon Oil 2⅝ 92 SwFr	3/84	1052	†105	105⅛	−0½	14.39
Nippon Shin. 2 92 SwFr	3/84	801	†95½	95⅞	+1	37.29
Sottsu Ppr. 2⅛ 92 SwFr	4/84	677	†145	145⅛	−0⅞	−2.94
Asics 5 92 DM	12/83	520	101	102	−0⅛	27.83
Sum Realty 6⅛ 92 DM...	2/83	385	150	151	−0⅛	−4.00

(nominal value in $m)

	Cedel	Euro-clear
U.S. $ bonds		
Last week ...	8,609.9	20,084.8
Previous week	15,465.1	21,384.7
Other bonds		
Last week ...	2,248.7	2,122.5
Previous week	1,261.5	1,422.2

* No information available—previous day's price.

† Only one market maker supplied a price.

STRAIGHT BONDS: The yield is the yield to redemption of the mid-price; the amount issued is in millions of currency units except for Yen bonds where it is in billions. Change on week=Change over price a week earlier.

FLOATING RATE NOTES: Denominated in dollars unless otherwise indicated. Coupon shown is minimum. C.dte=Date next coupon becomes effective. Spread=Margin above six-month offered rate (‡ three-month; § above mean rate) for U.S. dollars. C.cpn = The current coupon. C.yld = The current yield.

CONVERTIBLE BONDS: Denominated in dollars unless otherwise indicated. Chg. day=Change on day. Cnv. date=First date for conversion into shares. Cnv. price=Nominal amount of bond per share expressed in currency of share at conversion rate fixed at issue. Prem=Percentage premium of the current effective price of acquiring shares via the bond over the most recent price of the shares.

The list shows the 200 latest international bonds for which an adequate secondary market exists. The prices over the past week were supplied by: Kredietbank NV; Credit Commercial de France; Credit Lyonnais; Commerzbank AG; Deutsche Bank AG; Westdeutsche Landesbank Girozentrale; Banque Generale du Luxembourg SA; Banque Internationale Luxembourg; Kredietbank Luxembourg; Algemene Bank Nederland NV; Pierson, Heldring and Pierson; Credit Suisse/Swiss Credit Bank; Union Bank of Switzerland; Akroyd and Smithers; Bank of Tokyo International; Blyth, Eastman, Pain, Webber International; Chase Manhattan; Citicorp International Bank; Credit Commercial de France (Securities) London; Daiwa Europe NV; EBC; First Chicago; Goldman Sachs International Corporation; Hambros Bank; IBJ International; Kidder Peabody International; LTCB International; Merrill Lynch; Morgan Stanley International; Nomura International; Orion Royal Bank; Robert Fleming and Co.; Samuel Montagu and Co.; Scandinavian Bank; Societe Generale Strauss Turnbull; Sumitomo Finance International; S. G. Warburg and Co.; Swiss Bank Corporation International; Wood Gundy.

Closing prices on September 28

FINANCIAL TIMES SURVEY

Monday October 1 1984

Energy Management

The UK's energy conservation programmes have been sluggish compared with those of other countries. Intensive efforts made by industry and other sectors are beginning to match those of nations which do not have abundant fuel resources

A lack of clear targets

By Maurice Samuelson

BARRING A dramatic outbreak of peace in the protracted coal dispute, the approaching winter will pose the greatest threat to the UK's energy supplies since the time of the three-day week a decade ago.

Despite defiant claims by Ministers that power cuts will be avoided this time, the chilling reminders of 1974 will inevitably sharpen public consciousness about energy conservation at a time of the year when householders are already turning up their heating and using more lights.

The crisis is an appropriate occasion for considering how the UK has managed its energy needs since 1974. The picture which emerges is of a country with abundant fuel resources, but an awareness that this can sometimes be a mixed blessing.

On the credit side, the UK has developed its North Sea oil and gas reserves on such a scale that the output rivals that of some of the members of the Organisation of Petroleum Exporting Countries. The country has enormous reserves of coal, combined — as recent months have illustrated — with some flexibility in the choice of fuel for generating electricity.

As part of the long-term response to the 1974 and 1979 oil price shocks, there has been a general drift away from oil, vehicles travel more miles per gallon of petrol or diesel, and many industries have been producing more with less energy.

On the other hand, the UK's conservation programmes have also been sluggish compared with other countries'. The achievements have also been marginal compared with the estimates that UK demand could be cut by at least one-third by adopting proven and cost effective measures and even more by modest alterations in present energy consumption patterns.

Among industrialised countries in the West, the UK is virtually alone in not adopting a comprehensive set of clear targets for reducing energy consumption and for the replacement of oil by other fuels. While offering some support to encourage efficiency measures and fuel substitution, the Conservative government has been generally content to let prices influence energy demand.

Invest

Between 1979 and 1984, the UK spent less than £6 per household per annum on insulation and £12 per household per annum on better energy efficiency. In 1982, France, West Germany and the Netherlands spent six to seven times as much per citizen as the UK, and Denmark spent 14 times more.

In industry and commerce, investment on energy saving has been held back by the high interest rates and the wish to invest in ways which seem to promise a faster return.

Comments of this kind constantly recur in an impressive succession of reports about the UK's energy policy published in the past year by British parliamentarians, EEC officials, the International Energy Agency and by private commentators.

The latest, out today, points to the conflicts of UK public policy objectives which seek to promote energy conservation while at the same time continuing to encourage people to adopt increasingly energy intensive living patters*.

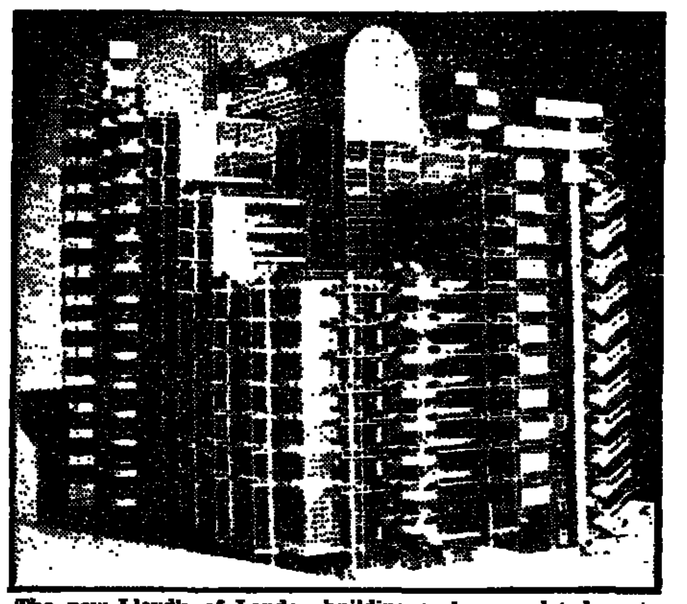
Its author, Dr Mayer Hillman, assesses conservation's contribution to UK self-sufficiency in energy and says that UK self-sufficiency could be greatly prolonged beyond the generally accepted time limits but only if it starts to feature more prominently as an objective of public policy.

Dr Hillman, a senior research fellow of the London-based Policy Studies Institute, claims there are social and institutional barriers to greater energy conservation and links them with the need for Government to adopt a longer-term perspective in forming its energy policy.

Calling for more radical policies and "a reform of Government thinking," he says too much attention is paid to investment in energy supply and not enough to the demand side.

Among his suggestions for rectifying this he lists:

- The introduction of energy labelling practices for buildings and energy-using appliances;
- Revision of the Building Regulations;
- Heavy subsidies for retrofitting buildings to improve their energy features;
- Standards and targets of energy efficiency for commercial vehicles, similar to those published for cars;
- Transferring the charge for vehicle excise duty to an additional charge on petrol.
- Differentiations of duty by engine size.



The new Lloyd's of London building to be completed next year. A computer-controlled system will provide automatic and local switching control, via fibre optic links, for 4,500 lights and 1,500 heat pump and fan air terminals.

Criticisms also appear in the latest annual report by the IEA about members' energy policies, which urges the UK to "consider the desirability of articulating more completely the goals and objectives of its energy policy."

Praise

However, those families' criticisms are tempered by the IEA's praise for what it describes as "a very positive change" in UK Government policy. This was last October's establishment of the Energy Efficiency Office within the Department of Energy.

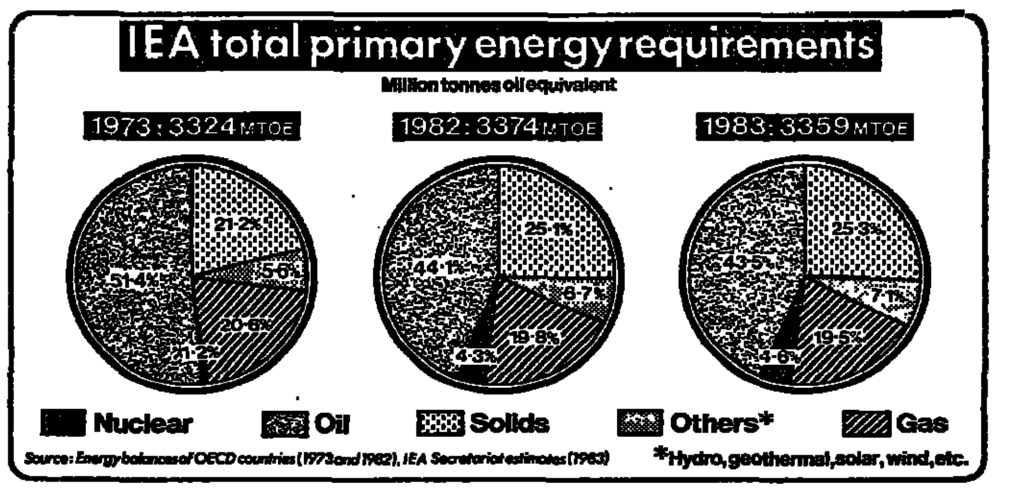
If the Office's impact has been greater than its political mandate would suggest (large areas of Government spending on conservation are outside its control) this is largely due to Mr Peter Walker, Energy Secretary, who has made conservation one of his top priorities.

He has done so by frankly recognising that the UK is one of the most backward industrialised countries in terms of energy efficiency. When he launched the Efficiency Office a year ago, the coal strike was still little more than a gleam in Arthur Scargill's eye and Government and public interest in energy conservation were at their lowest ebb for five years.

While reopening public discussion about it, Mr Walker has also embarked on a series of practical measures. He is trying to encourage manufacturers and retailers to label domestic heating appliances according to their running costs, one of the proposals mentioned by Dr Hillman. He is also trying to encourage a rating system for the energy efficiency (or inefficiency) of houses.

Officials in his department are also pressing for energy consumption figures to be made a statutory part of company reports.

On the financial level, Mr Walker has announced a further £65m to extend until 1990 assistance for industrial and commercial demonstration schemes from which other energy users can learn.



By diving headlong into the conservation issue, Mr Walker not only set out to swim against the stream of public apathy but has implicitly charged his predecessors with sharing that apathy.

His next major public platform on conservation will be next month's national energy management conference at the Birmingham National Exhibition Centre. One of its first sessions will be a round table discussion between Mr Ian MacGregor, National Coal Board chairman, and his opposite numbers from the gas and electricity industries—Sir Denis Rooke and Mr Philip Jones.

The conference is an annual event launched by Mr Tony Benn, former Labour Energy Secretary, in the mid-1970s. Attendances have grown steadily but conference has rarely attracted general public notice although with Mr Scargill's help, this year's might be more newsworthy.

Emphasis

Its real importance, however, will be the light it sheds on the level of UK energy management expertise and the state of the energy equipment industry.

The term "energy manager" was coined in the 1970s to give more emphasis to the personnel responsible for this important part of national life. They represent a wide cross-section of technicians, heating and process engineers, fuel purchasers and administrators, but have yet to coalesce into a recognised profession. But like the conservation issue itself, energy managers seem to be gradually growing in public stature.

There are now some 5,000 energy managers throughout the country, associated with 70 discussion groups organised by energy efficiency officers based in the regional offices of the Department of Trade and Industry.

Since 1979, the Energy Department has been organising courses for energy managers. These were run initially at the British Gas school of fuel management and are now concluded under the auspices of the British Institute of Management. Courses are also being developed at several polytechnics.

However, the aim is not to produce yet another specialised stratum of managers, but to spread the habits and skills of energy efficiency as widely as possible throughout the population as a whole.

* *Conservation's Contribution to UK Self-sufficiency, by Mayer Hillman; British Institutes' Joint Energy Policy Programme (Heinemann Educational Books, £9.50).*

Contents

A new body is busy putting across the government's message, as **Andrew Warren** explains

Energy Efficiency Office takes the strain

ENERGY conservation was the subject of one of the few specific commitments incorporated into the 1983 Conservative election manifesto, which promised to set up a new efficiency office to take care of the problem.

The promise did not emerge from a vacuum or a political whim but followed proposals by the House of Commons Select Committee on Energy, the House of Lords EEC Committee and Lord Rayner, the Prime Minister's scourge of the public sector. Each in turn had examined the subject and declared that there was indeed a problem regarding the Government's handling of it.

Within months of the election, the Energy Efficiency Office was set up in the Energy Department. Its objective was simple: to save 20 per cent of the energy currently used, thus reducing the nation's fuel bills by £7bn a year. As Mr Peter Walker, the new Energy Secretary, put it: "I have set a target that, by the end of this Parliament, Britain should be at the top of the league on energy efficiency, not at the bottom."

The Manifesto had at no stage spelt out just how the Energy Efficiency Office was to be run. It was not even certain at first that it would remain within the Department of Energy. Parliamentarians had seemed to favour a separate quango like those in several European countries and in some American states. The Commons Select Committee had even proposed an independent Ministry of Energy Conservation.

Flourish

In the event, the new office merely subsumed the existing conservation division of the Department of Energy, whose officials changed their titles within the new office, which was launched with a flourish this time last year.

The continuity of staff from the old division caused some cynics to describe the change as little more than a make-work exercise for carpenters in the departments—changing titles on the doors.

However, the last year has shown such unkind jibes, to have been largely misplaced.

The creation of the EEO has transformed the attitude of Department of Energy officials towards energy conservation. The old conservation division, grafted uncomfortably on to the old Ministry of Fuel and Power, was not one to which high flyers within the Department aspired. However, both the morale and the purpose of the staff employed in the office have increased immeasurably. Rising stars in the department jostle to join it and in other divisions there are numerous complaints about the amount of manpower now allotted to the EEO — up 30 per cent in one year to 98 staff — particularly considering the relative size of the expenditure they control or monitor.

Mr Walker and his impressive junior minister, the Earl of Avon (replaced last month by David Hunt), have appeared regularly at businessmen's breakfast meetings all over the country, addressed numerous conferences, and visited factories, promoting the energy saving message.

Meanwhile, their staff under the directorship of Mr Bill Macintyre, organise promotional stands at shopping

Peter Walker, Energy Secretary: "I have set a target"

arcades and Ideal Home Exhibitions, at industrial exhibitions and county shows —and for the first time, are seeking to act as the sponsoring department for the burgeoning energy conservation materials industry.

The office's new agency, Doyle Dane Bernbach, is co-ordinating the creation of TV, radio and press advertisements. In short, the Energy Efficiency Office is acknowledged throughout Whitehall to be taking full responsibility for the Government's new drive for energy efficiency.

On the other hand, the office has not obtained spending powers necessary to ensure that the policies succeed. Lord Rayner was explicit when he called for all relevant Government expenditure to be transferred to the control of the EEO.

When he compiled his review, less than 10 per cent of related Government expenditure fell to the Energy Department. Since that time, the office's promotional budget has been expanded, from £13.7m last year to £17m in 1984-85. But little has yet changed administratively.

The Industry Department has handed over the scheme whereby partial grants can be obtained in industrial and commercial premises to convert boilers from oil or gas to coal (a scheme which has not been so popular in recent months). But everything else —whether to do with energy conservation money for private homes, local authorities, job creation schemes, schools or hospitals—remains with the same Government Department as before.

This might not matter if the gust of enthusiasm wafting through the Energy Department was also being felt elsewhere in Whitehall, in town halls and regional health offices. But there are signs that the other Departments of State have seen Energy's initiative as a cue to relax whatever limited interest they themselves have in this area.

Last April, the Treasury caused problems in the residential conservation market by slapping VAT on all building work, thereby putting up the cost of all energy saving measures installed in the home.

Funds

Half way through the last financial year, the Welsh Office withdrew loft insulation grants without even first consulting the Department of Energy.

The decision of the Manpower Services Commission to cut off funds for the Neighbourhood Energy Action head office, the support team for some 70 local insulation projects around the country, was approved by the Secretary of State for Employment, despite protests by Conservative MPs. It was left to the Energy Efficiency Office instead to pick up the tab to ensure this vital work continued.

The building regulations covering the thermal efficiency of buildings still fall under the bailliwick of the Department of the Environment or the Scottish Office where, despite prodding from EEO officials, there seems to be little urgency to solve such anomalies as the lack of mandatory heating controls for homes; the discrepancy between the heat retention standards for roofs in commercial as opposed to domestic premises; and the absence, unique in Europe, of any measures to cover floor insulation.

This, despite the fact that in 1984 a home loses nearly a quarter of its heat through the floor.

The Health and Education Departments continually call for greater financial efficiency by their constituents. Yet while most Government-funded capital projects are not expected to pay for themselves within 15 years, neither of these departments will fund energy-saving projects with pay-back times of more than five years.

Andrew Warren is director of the Association for the Conservation of Energy.

Government support schemes

Energy Efficiency Survey Scheme—Short Survey
The EES "Short Survey" replaces the "one day" survey scheme. Grants of half the consultancy fee up to a maximum of £250 (excl. VAT) are available. Prior approval from Dept. of Energy is not necessary.
Contact:
Energy Efficiency Office,
Department of Energy,
Thames House South,
Millbank, London SW1P 4QJ.

Energy Efficiency Survey Scheme—Extended Survey
A 50 per cent grant, subject to a maximum of £10,000, is available towards the cost of an extended survey. There is some flexibility to limit the scope of the survey to parts of a building, plant, or system. Prior approval is necessary and applications must include a survey proposal.
Contact: as above.

Energy Efficiency Demonstration Project Scheme (EEDPS)
Financial assistance is available towards energy conservation projects which satisfy a number of criteria related to the national energy savings expected to accrue from the demonstration of innovative techniques.
Contact:
Dr W. M. Currie
ETSU
Building 156
AERE Harwell
Didcot
Oxon OX11 ORA
Tel: 0235 834621

Industrial Heat Recovery Consultancy Scheme
Manufacturing companies with an energy bill exceeding £100,000/yr in a single factory may qualify for:
- total reimbursment for consultancy up to £3,000
- half the cost beyond £3,000 up to a maximum of £7,000 for an acceptable consultant to undertake design, specification and tender appraisal work for a heat recovery project in their factory.

Contact:
Mr R. Gluckman
DTI Industrial H R Scheme
W. S. Atkins and Partners
Woodcote Grove
Ashley Road
Epsom
Surrey KT18 5BW

Coal Fired Boiler Conversion Grants
The Government provides up to 25 per cent of the capital cost of converting non-domestic boilers, furnaces and ancillary equipment from oil and gas to coal.
Contact: Dr V. T. Brooks,
Room 233,
Dept. of Trade and Industry,
S.E. Region,
Ebury Bridge House,
2-18 Ebury Bridge Road,
London SW1 8QD.

EEC Energy Conservation Demonstration Projects Scheme
The European Commission periodically announces dates by which applications should be submitted for consideration under this scheme.
Contact:
European Community Commission
Information Office
20 Kensington Palace Gardens
London W8 4QQ
Tel: 01-727 8090

Search for a sensible programme

MR WILLIAM MACINTYRE, director - general of the Energy Efficiency Office, is currently in the position of a chef who has just produced a tasty breakfast and is wondering how to repeat the success at luncheon.

Summing up the first year since Mr Peter Walker, Energy Secretary, launched the efficiency office, Mr Macintyre says that it has scored several successes but sees a lot more challenges ahead.

He lists five barriers towards what he calls "a sensible energy efficiency programme." Those are:

- Lack of information;
- Lack of interest;
- The weak and fragmented state of the efficiency equipment industry;
- "Structural" problems — such as landlord/tenant relations — which inhibit energy-saving decisions by fuel users;
- The physical or financial handicaps of energy consumers who lack the ability or the cash to apply energy saving measures.

He insists that the information gap has to be tackled first, and says his office has been involved in a consistent programme of giving advice and information to domestic consumers. They have been courted throughout the country by "road shows" caravans and exhibitions in shopping centres which, by the end of the year, will have appeared at 100 locations.

However, he says the energy equipment industry has not followed up this campaign by selling sufficient goods and services to the public.

William Macintyre, Office director: more challenges

The "outstanding success" of the office's first year had been the campaign aimed at non-domestic energy consumers. Mr Peter Walker and Lord Avon, parliamentary under-secretary in charge of conservation, had participated in 23 breakfast meetings with local businessmen, industrialists and other executives.

Similar engagements were planned in a further 17 localities.

The early morning message which Mr Walker and his staff were trying to get across was that senior executives had to be involved personally in their companies' energy performance; that each company should have a qualified employee responsible for energy efficiency; that they should adopt energy targets and monitor progress towards them; and they should take advantage of Government-funded survey schemes.

According to Mr Macintyre, when Mr Walker first mooted the breakfast time crusade, local branches of the Confederation of British Industry and the Industry Department's regional offices warned that they would not pull in enough participants.

Faith vindicated

Mr Walker's faith was vindicated—430 people attended the first meeting at Solihull, Birmingham, 1,000 appeared in Manchester, 650 in Newcastle, and 600 at Aberdeen. Following the Manchester meeting, the energy efficiency official at the Industry Department's regional office there was asked to visit 300 sites in the vicinity.

Besides the Ministerial campaign to contact senior executives, the Energy Efficiency Office has also been sponsoring conferences for the 6,000 people identified as energy managers.

At present, the energy managers are organised in 74 groups on a regional basis. However, the Energy Efficiency Office feels these have not been developing satisfactorily and would like them to be regrouped on an industry sector basis, as is already the case in some industries such as brewing and chemicals.

The Office also takes a sectoral approach in its programme of monitoring and targetting the energy use of selected groups of companies, whose results are then made available to other companies in the same industry.

Paper and textile manufacturers have already been given this treatment and a further 18 industries are also being studied. As a result of their findings it is hoped that companies will overcome their hesitation about investing in new energy-saving technologies.

Mr Walker's emphasis on publicity also prompted him in the Spring to enlist the support of five businessmen from outside his Department to act as "marketeers" for energy efficiency. Their subsequent activities have attracted far less publicity than their original appointment. So far, they have proposed that houses should be classified according to their energy efficiency, and there should be efficiency labelling of electrical appliances.

To support the first proposal, the Energy Department is financing HEAT (the home energy audit and treatment scheme), involving surveys of homes and discounts for householders on energy-efficient equipment.

Mr Macintyre and his colleagues admit that their Office has not been given the wide-ranging powers suggested by the Rayner study of Government conservation policies. In addition to pointing to the increase in the Office's manpower and budget in the past year, they claim they now enjoy much closer relations with the Environment Department and the Property Services Agency (PSA) which manages the government's building stock.

The exception was the "unfortunate debacle" of the Welsh Office's cancellation of grants to local authorities for insulation, but he blames this partly on the fact that Welsh Office expenditure had been so drastically slashed that its staff was barred from travelling from Cardiff to London.

They also claim that the Welsh freeze on insulation grants was only temporary—"not death but suspended animation."

Transport policy, another area crucial to energy consumption, also remains under the aegis of another Government department. Nevertheless, in the past year, there had been no major bit of transport policy which had not been first checked with the Energy Efficiency Office before implementation.

Outside Government circles, the Energy Efficiency Office also enjoyed very intimate contact with the Confederation of British Industry providing further evidence that its influence was more pervasive than its formal status would suggest.

Maurice Samuelson

State scheme paying off

IF SEEING is believing there is a good chance that the Government's attempts to encourage industry to make energy savings will at least partly succeed.

Not everyone believes that enough is being spent on energy conservation, but Government support has already made an impact.

Take the case of Staffordshire teapot and giftware manufacturer James Sadler and Sons. More than 18 months ago, the company replaced a 47-year-old tunnel kiln producing biscuit earthenware with a £225,000 single-layer fast-firing tunnel kiln.

Energy savings have been more than 60 per cent, producing a 4.4-year payback period on energy savings alone.

There have been other benefits, too, from direct labour savings and reduced work-in-progress, which have further reduced the payback period.

Since then more than 200 visitors have travelled to Stoke-on-Trent to witness the change, for James Sadler is one of about 250 companies supported by the Energy Conservation Demonstration Projects Scheme (ECDPS) which began in 1978

Run on behalf of the Government's Energy Efficiency Office by the Energy Technology Support Unit at Harwell, the scheme offers grants of up to 25 per cent to the initial customers of novel energy-saving projects.

In return, the company and the equipment manufacturer both agree that an independent assessment of the project results be made for distribution to others, including rivals, who could also benefit.

By this process, it is hoped, others will follow when the success of a project has been demonstrated. Replication is the key word, as it was at police headquarters in Sheffield where an automatic lighting system in South Yorkshire was installed after a similar scheme by Bradford Metropolitan Council.

Although senior police officers were hardly enamoured with the idea (they thought the control switches might look like Christmas decorations) the system has saved £10,000 in the last 12 months to pay back the cost of the equipment installation.

Mr Ken Curry, the Energy Technology Support Unit's programme manager, says there have already been more than 2,000 such replications.

His objective is to achieve national savings of £5 per annum for every £1 put in. So far the cost of the scheme has been about £60m. But critics, including the Commons Select Committee on Energy, argue that not enough is being spent on cutting the demand for energy, compared with what is spent on research and development elsewhere—especially in nuclear research.

Government support
DAVID HELLIER

In Mr Curry's view, money has not been a problem. Companies have not exactly been clamouring at Harwell's door in order to qualify for grants, he says.

"We have not been inundated with proposals for new projects," he admits. "Part of the problem has been the shortage of capital in industry and the economic environment which has made companies unwilling to invest in relatively long-term projects."

The industries in which some of the largest energy savings can be made—glass, potteries, steel, paper and board, and textiles—are also those in which many companies are living on a knife-edge.

"In some sectors it is uncertain even whether there will be an industry in 10 years' time," says Mr Curry. "In some demonstration projects the companies we have supported are not saving as much as they could because they are only running at half capacity."

Initially, the major problem centred on making people aware that the scheme existed. "The Government was initially very slow to publicise the scheme," says Mr Peter Sadler, managing director of James Sadler.

This year the aim is to reach at least 10,000 carefully selected people through invitations to promotional events. This will be backed by national advertising and marketing efforts by the equipment makers; and for the first time Mr Peter Walker, Secretary of State for Energy, has confirmed the scheme's long-term future.

Mr Walker, took the opportunity at a seminar last month to announce a £500,000 study—to be conducted at the Atomic Research Centre in Harwell—to show how £1bn worth of energy can be derived from waste heat and from the atmosphere.

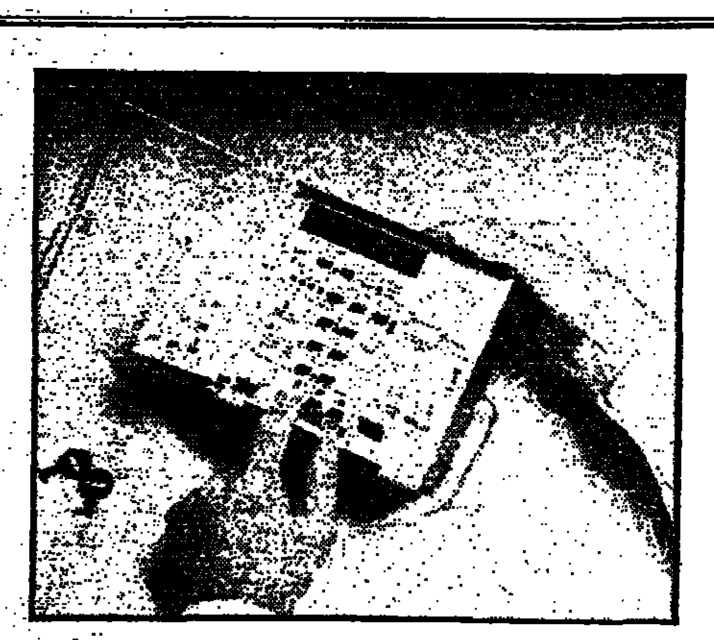
With the existing 253 projects, the long-term replication target is worth more than £300m in energy savings at current prices, and over the next few years it has been proposed to increase the number of demonstration projects to 550 to realise the full potential of the scheme.

But the Unit is attempting to switch the emphasis of its approach from new schemes to promoting replication. The idea is that once a scheme has been shown to be successful, much of the risk has been taken out of any new investment. "It's just a question of getting that message across," says Mr Curry.

Harnessing wind energy

The Wind Energy Group's 20-metre turbine on the island of Orkney was connected to the grid last year. It is the prototype for a 60 metre diameter machine, rated at 3MW, to be built on the same site next year and capable of producing enough electricity for 2,000 homes. The group has developed a new design 25 metre generator, to be commissioned by December at Ilfracombe, Devon, which will be the focus of an overseas sales drive.

Trade group grows



A lighting control unit. Equipment like this is being produced by an increasing number of companies in what amounts to a new industry.

AMONG THE companies which try to pick up business in the wake of Mr Peter Walker's breakfast-time pep talks about energy conservation, are the 67 members of the Energy Systems Trade Association (ESTA).

These are among the most highly - specialised energy efficiency companies in the sense that this is their principal business and they are not merely trying to use energy efficiency as a subsidiary selling point for their product or service.

They are mostly smallish companies in a sunrise industry which until two years ago did not have its own trade association.

It was the need for such a body which prompted Dr Glenn Brookes, then a scientist at the Government's Energy Technology Support Unit, Harwell, to suggest the formation of ESTA with himself as director.

Dr Brookes recalls that from an initial eight members, ESTA has now grown to its present size and says it finds itself in a continually expanding market covering five main sectors. They are:

● Heat recovery systems for industry commerce. ESTA members are said to have 60 per cent of the market currently valued at £10m a year but which, according to some estimates, is potentially worth £½bn a year.

● Building energy management systems, a £25m a year market, 85 per cent of which is in ESTA members' hands and growing at 50-100 per cent a year;

● Incinerators for heat recovery, a mature market worth about £12m a year, of which ESTA companies have about 35 per cent;

● Heat and energy management companies, currently an £85m a year business of which 90 per cent is thought to be in ESTA members' hands. Although the biggest market, it is highly specialised with only seven ESTA members. They are Associated Heat Services; Emstar, a Shell offshoot; BP Energy; Boiler Operations and Maintenance (BOM); Utilicom; Utility Management Company (UMC); and Wellsmere Energy Management, an offshoot of Debenhams.

The association also includes several energy management consultants, whose services are mainly limited to energy surveys and audits.

M.S.

Experts with an eye on fuel costs

Consultants

CHRIS CUNNINGHAM

WITHIN THE last 10 years of energy-awareness there has emerged a band of hopefuls dedicated to convincing industry, commerce, and local government that their recommendations for spending on equipment and services may not increase productivity one iota. Neither will the equipment deliver a single item of goods.

But the effective energy management this disparate group of in-house managers, consultants and energy services suppliers is trying to promote could knock a hefty lump from one of the largest items a finance director could wish off his balance sheet—fuel costs.

The problem for the hapless energy manager is that one of the fastest routes to giving a company that leaner, more efficient look, often appears to be longer. Making money without turnover needs time and conviction.

Perhaps it is this image of "invisible earnings" that has endeared energy management and its practitioners more closely to the heart of commerce than to the affections of the more rough-shod world of industry.

The main clearing banks, the oil majors, any trading group with a fair acreage of office space to service employs a member of its middle management squad to maintain and develop a high standard of background services — widely speaking, a comfortable atmosphere—at reduced cost wherever possible.

If we assume that an energy manager in commerce does not have available a computer-packaged audit system to measure energy consumption throughout a building, it is reasonably certain that he will have to call in a consultant to assess the heat load of the building, whether heat is being produced in the most efficient way possible (if the fuel is oil, it probably isn't), and how the various services can be most effectively controlled.

When the time arrives to reconsider services in the building, an energy manager then has to take on the role of odd job man.

It is difficult to identify the role of an energy manager, other than as cost cutter, because the engineering services under his control are so broadly-based.

They will include the "plumbing" tasks of heating, ventilation and air conditioning (however sophisticated the level of environmental engineering involved, most building services are distinctly short of glamour); electrical engineering, especially in establishing a system of low energy lighting with perhaps computer control of use of lighting (which often accounts for 40 per cent of a building's fuel bill); and a certain amount of computing expertise if these services, as well as alarm and surveillance services, are supervised through a central building management system.

But these services are standard in most office buildings. Consider the lot of the energy manager in a process industry who requires a more specialised knowledge of energy-consuming plant (and therefore a more diverse range of engineering skills than his commercial counterpart possesses). In an environment that almost certainly begs increased fuel efficiency, the task of the industrial energy manager can be largely an up-hill struggle.

Suppose a process energy manager has reckoned and recommended cost-saving measures that might save his company 30 per cent or so on his fuel bill. The task of taking the argument to the point of action is frequently the toughest part of the exercise.

Management in industry is still convinced that internal investment capital is best spent on increased turnover, even though in both the long and short term the cost of higher throughput is likely to be breater and to have a lesser impact on profitability. Few, though thriving, are the companies who have recognised that an effective programme devised by an energy manager can help finance more tangible expansion.

The status of energy managers in manufacturing and process industry may frequently be in question. But there is little doubt about the poor showing of energy management in local government. A recent report from Leeds University, published by the Association for the Conservation of Energy, the lobby for energy efficiency supply companies, shows that less than 20 per cent of local councils in the UK have designated an energy manager.

Although there are notable exceptions, particularly the London Borough of Hackney, few councils see the task of promoting more efficient use of fuel as their territory — even councils with high rent and rates bills brought on by disastrously inefficient district heating schemes designed in the days of cheap oil.

None the less, energy managers in more enlightened areas of local government are taking on the task of insulating and weatherproofing local housing stock that would otherwise deteriorate rapidly.

Within the last year or two, several groups of exponents of energy management have decided that the steps to effective fuel efficiency are too many. Better, they suggest to bring functions such as energy auditing, selection of equipment, and, perhaps most convincing of all, the tasks in setting up an energy management scheme, foolproof financing, under one umbrella.

These energy management bureaux, or in a slightly different guise, third party finance companies, have in common a service that involves choosing plant and equipment that will more-or-less ensure fuel savings, and offering the money to pay for capital items. These companies in effect take on much of the power of decision that the customer company's board might otherwise have to apply, and they have a more practised understanding of pay-back periods. (A bureau's income is an agreed share of the savings on fuel costs after a customer's energy services have been revamped.)

The progress of bureaux and third party financing companies is at an early stage. And their list of clients not unexpectedly leans closer to commerce than to the more specialised and more broadly-based requirements of industry.

If these organisations achieve anything close to the success of their older American siblings, there is every reason to suppose that a large slice of energy efficiency practice will emerge as a service industry rather than a group of individuals battling for status.

Chris Cunningham is editor of "Energy Manager."

Gaining control of the bills

Equipment

PATRICK COYNE

SUPPOSE THAT a steel works is running an arc furnace at full tilt and carries on at this level into a period of peak load on the electricity board's demand schedule. And suppose, just to make sure that there are absolutely no complaints about heating level in its offices, a company turns up its thermostat a notch or two whenever the temperature drops outside.

The results of these two cases will be a swingeing penalty on the steel works' electricity bill, and a fuel bill maybe 5 or 10 per cent higher than it need be for the offices.

The lesson is that, no matter how sophisticated and efficient the equipment that consumes energy, opportunities for saving are limited if the level, and often the aiming, of consumption of fuel is not tightly controlled.

The need to take control of energy consumption away from human interference wherever possible, and to closely monitor any site in a factory or offices where there is any load on a company's fuel bill, coupled with advances in microelectronics and computer technology, has given rise to an industry based on energy management systems.

Energy management systems have developed in the light of progress in telecommunications technology. Even some of the terminology — local network, star and ring configurations—reflects ideas in short-range data communications. And like telecommunications, the configurations available are as large in number as the applications.

Functions

A "standard" configuration might involve a controller station programmed with "setpoint" data about various sites around a factory or suite of offices. Among the lower-priced, box-on-the-wall type of controller, typically used for setting temperatures and complex timing information in a heating system, Robertshaw of Amersham's 2616 Energy Controller, and Satchwell of Port Glasgow's Fuel Censor include among their functions duty cycling, optimum start and stop control, and demand limiting for electrical load.

In turn, these "intelligent controllers" might be configured as outstations for a central console. Such a "distributed intelligence" system might leave all the controlling of timeswitches, valves and the like to hardware scattered about one or several buildings. The controllers, meanwhile, feed information back to a central supervisor station, perhaps in a central control room.

Although a supervisor station may not take a direct role in controlling plant, its software will allow a human supervisor to build up a picture of what is happening at various remote sites (data is normally carried via a standard STD telephone connection). The 950C supervisor from Trend of Crawley is a recent instance of this type of system: it is implemented on a Hewlett-Packard desk-top computer and presents data as colour graphics.

Distributed or stand-alone energy management units are generally configured to switch plant on or off at pre-set levels and at strategic moments (the beginning of a day's work or, say, at a period of maximum demand).

For even finer control of energy consumption in plant, the technique of direct digital control has emerged. Systems such as Johnson Control's JC/85/40 building management system employ "ddc," direct digital control. The essence of ddc is to consider a whole building as a single entity, instead of a series of control problems, and to adjust or position valves and dampers at strategic points to maintain services at the best overall level.

Effective direct digital control depends on computing power at the central control point. This enables a building services engineer to construct models involving all operating parameters throughout a site and to determine the best configurations for changing conditions.

Option

This theoretical modelling of fuel consumption shortens the route to the best available option; with more conventional programmable control techniques, the only available option is to hard-wire systems and see what happens.

At a fairly early stage of its development, the EMS industry shows distinct signs of overcrowding. Although not all are wholly committed to manufacturing these systems, at least 60 companies share an annual turnover of about £15m. A handful of these outfits each has a turnover exceeding £1m and, hardly surprisingly, companies have experienced the beginning of a "shake-out."

In recent weeks, Invicta Energy Management of Ashford in Kent bought out the most northerly outpost of EMS manufacturing in the UK, Atlantic Instruments of Aberdeen. Whatever the geographical distance between the two companies, their product lines, based on easy-to-operate systems for building management, were close rivals. Although Atlantic will continue with its Microlink and Minilink systems, the company will share the same overall control that produces Invicta's EnergyMinda series.

Some EMS manufacturers have encountered the problem of winning a lucrative contract, being forced to commit most of their production to meeting the contract and, fortunately quite rarely, finding that the customer was not financially prepared for a heavy outlay.

A continuing debate in the industry is over the compatibility of systems. While one manufacturer's outstation and central controller will happily communicate over a data loop, it will not necessarily be compatible with a competitor's software. The occasional contract demands compatible systems—for instance, the contract for building management systems at Heathrow Airport's Terminal 4, for which there are four main suppliers.

So far, there are no major cases of financial disaster for a company unable to supply a compatible system to meet a tender. On the other hand, there have been few very large contracts for building management systems like Johnson Controls as main supplier to the new Lloyd's building.

Patrick Coyne is Managing Editor of Energy Manager magazine.

Energy Management 4

David Churchill looks at various ways in which industry and the retail trade are cutting heating and lighting costs

Sharing ideas and techniques

Industry

BRITISH INDUSTRY has reacted in various ways—and at varying speeds—to the inexorable pressures of the past decade for more efficient use of energy. Many individual companies, especially those in areas of high energy use, have for many years forged ahead with their own energy saving techniques, moving on from simple "good housekeeping" measures to embrace substantial investment in new technology.

However, the size of potential energy savings on a national basis—industry and commerce are estimated to have spent almost £10bn on energy costs last year—has accelerated the bringing together of individual ideas and techniques for application on an industry-wide basis.

Accelerate

How are the major industrial sectors seeking to improve their energy efficiency?

BREWING: The brewing industry was one of the first to embrace greater energy efficiency. A fuel use survey in 1977, for example, revealed that some breweries were using three times as much energy as others to produce the same quantity of beer.

Consequently, the sector launched its own energy saving campaign in 1978 and, by the end of 1982, had already shown savings of 16.5 per cent on its specific energy consumption at breweries. Overall, the brewing industry has cut energy consumption by 23.5 per cent between 1976 and 1982.

However, the brewing industry sees energy saving as a long-term project. Mr Charles Tidbury, chairman of the Brewers' Society, emphasises it is "a constant campaign to ensure efficient practices are maintained." He adds that the next major area for energy savings will be in public houses: "Recent estimates by a number of companies indicate that their public houses consume as much energy as their breweries," he says.

FOOD PROCESSING: The food processing industries are collectively among the largest consumers of energy in the UK, accounting for about 9 per cent of energy consumed by industry.

One example of the way in which technology is helping to save energy in this sector is shown by Associated British Maltsters. Kilns are used in maltings to dry malted barley and to halt germination and account for about 90 per cent of the fuel and 40 per cent of the electricity used in a maltings.

Two kilns at ABM's Louth maltings were fitted with a waste heat recovery system incorporating a run-around coil and a gas engine-driven heat pump. A microprocessor controller was also installed to control automatically kiln air flow and temperature. Annual savings in gas consumption of 460,000 therms were achieved through this system.

STEEL: The iron and steel industry accounts for some 18 per cent of all energy consumed by industry. Energy currently represents about 40 per cent of the total production costs of semi-finished steel, a rise in value in recent years arising from the significant reductions in manning levels in the industry.

Reheating steel for rolling, for example, is an energy-intensive process which is often carried out in continuous reheating furnaces. At the Tipton works of the Dudley Port Rolling Mills, the installation of recuperative burners on a continuous reheating pusher furnace substantially improved the energy efficiency of the furnace. The size of the savings encouraged the company to convert two other furnaces in the same way.

Scope

If similar measures were repeated throughout the UK steel industry, total energy savings equivalent to about 75,000 tonnes of coal could be achieved annually.

The longer term scope for energy savings within the steel sector are estimated at potentially saving a fifth of current energy consumption. Some 5 per cent of savings could come from raw material and manufacturing process changes, such as the exclusive use of high grade foreign ore and the continuing introduction of continuous casting.

Technology improvements could make a 10 per cent saving, while further "good housekeeping" measures could save another 5 per cent of energy consumption.

GLASS: About 80 per cent of the energy used in glass making goes on melting the raw materials to make glass, which is then formed into various products. The major opportunities for energy savings are in waste heat recovery and improvements in the melting process. However, large energy savings from the recovery of waste heat are somewhat speculative at present, particularly those associated with regenerative burners and waste heat boilers.

Improvements to the melting process largely centre around the use of all-electric or mixed melters. The crystal sector in particular could benefit from all-electric melting.

Another area which could produce major energy savings is to reduce the amount of glass which has to be returned for remelting, currently about 15 per cent for all containers.

CHEMICALS: The chemicals industry is a large consumer of energy, also producing much process heat, often at high temperatures. During the 1970s, the energy consumption per unit output within the chemical industry was reduced by about 20 per cent. In general, this was achieved by the adoption of improved energy management and good housekeeping measures as well as the replacement of older, less energy-efficient plant.

The effect of the recession, with a resulting worldwide over-capacity, reduced profitability and cash flow in the sector. Although there are now signs of an improvement, there is still little or no scope for constructing new energy-efficient plant. Energy conservation is seen as an attractive means of improving profitability but the industry generally demands payback periods of 18 to 24 months or less.

TEXTILES: In textile manufacturing, the cost of energy is about 10 per cent of the total turnover value. The main obstacle to improved energy consumption in the industry is the uncertain return on capital from investment in energy saving projects.

Opportunities for saving energy lie mainly in the wet processing parts of textile preparation and finishing and in the wool and worsted sectors. For example, a reduction of 40 per cent in the energy consumed in wet processing could be achieved by using existing technology.

- *A comprehensive review of energy saving in many industrial areas can be found in a new Government booklet published recently. Called the "Energy Efficiency Demonstration Scheme," it is available from the HMSO at price £8.25.*

Savings based on commitment

Retailing

MARKS AND SPENCER, Britain's biggest and most successful retailer, achieves energy savings to the value of £5.5m a year — more than some retailers make in annual profits. The commitment of Marks to energy efficiency over the past decade is yet another sign that well-run and efficient companies are not only among the most successful in their market sectors, but are also the best at saving energy.

The total service sector — retailers and hotels, for example, as well as local authorities — is a major consumer of energy and has increasingly looked to ways of saving energy as costs have risen.

Local authorities, for example, spend over £1bn a year on energy, which represents some 4 per cent of the national total. According to the Government's own Energy Efficiency Office, the energy conservation potential in public buildings is about 50 per cent of current consumption.

Apart from the introduction of heat pumps and microprocessor-based technologies, this potential will largely be realised by improved management and by increased implementation of existing energy conservation technologies, such as fabric insulation, draught-proofing, and improved local controls of boiler, heat distribution, and lighting systems.

At County Hall, home of the Greater London Council, a series of energy saving measures has not only resulted in steadily reduced gas consumption but has also won a regional Gas Energy Management award.

Heating zones

These measures have included fitting optimum start controls on all 14 heating zones into which the building is divided. Weather-compensated controls, thermostatic radiator valves, roof insulation, draught sealing and secondary glazing have also been introduced.

An important innovation has been the installation of a 'Satchwell' central building management system, which includes a central boiler plans, comprising two 'John Thompson' steam boilers and five 'Cochran' hot water boilers.

Over the past four years, the GLC has achieved gas savings of 26 per cent and the cost of investment has been recovered from savings in fuel costs.

The Welsh Water Authority, which supplies water to 3m people and is responsible for more than 100 reservoirs, has shown the design of plant can also be important in energy conservation.

A special survey of its headquarters office heating systems recommended combining two separate systems into a single modular boiler system, with seven boiler units controlled to come on stream in sequence, as the load increases. Optimum start controls were also installed as were new zone controls. Altogether, gas consumption was cut by 51 per cent a year, giving a payback in less than a year.

Marks and Spencer's energy savings record—some £30m has been saved in the last decade—has been helped by a top-level commitment to energy efficiency.

Lord Sieff, who retired as chairman last July, was a major influence.

"By providing top-level backing to those directly responsible, he created the right attitude of mind throughout the business for all staff to exercise vigilance in the use of energy," explains Mr George Colman, Marks' energy manager.

"To maintain this impetus, Lord Sieff called for periodic progress reports on energy consumption and costs, details of new technical innovations, together with feedback information on systems installed with actual savings achieved."

Marks energy savings have been achieved in four main ways: an energy audit; good housekeeping; improved efficiency of existing plant; and technical innovations.

The energy audit shows that 80 per cent of energy is spent on electricity and 20 per cent on gas.

Of the electricity costs, some 26 per cent in 1982 goes on sales floor lighting (compared with 40 per cent in 1972), while 42 per cent (compared with 29 per cent) now goes on food refrigeration. This reflects the greater proportion of selling space given to chilled and frozen foods over the past decade.

The energy cost of sales lighting, for example, was cut by simply reducing the lighting level from 1000 lux to 600 lux. There was no effect on sales, therefore this cost nothing to Marks and saved more than £500,000 at 1974 electricity prices.

Another move was to cut the number of fluorescent tubes used in pelmet lighting around stores from two to one. Some 56,000 feet of tubing was removed and the reduction in electricity charges was some £70,000, worth £250,000 at current energy prices.

In addition to these savings, Marks also introduced more efficient light sources developed by Thorn and Philips.

Another major retailer which has embraced energy efficiency with some zeal is Tesco, the supermarket chain. Tesco spent £21m last year on energy, a bill only surpassed by labour costs, but this was some £2.25m lower than it might otherwise have been with the greater energy efficiency achieved over the past decade.

One key way that Tesco has found it can save money is simply by checking every energy bill. It frequently happens that although Tesco close a store and move out of a property, the electricity and gas boards continue to bill Tesco, and base those bills on the store still trading.

Another service sector which has embraced energy efficiency is hotels. The Ladbroke Hotels group, for example, has installed a computer-based energy saving system in 15 hotels. Each hotel has been fitted with energy control and monitoring units which can report to and receive commands from a central unit in London.

Ladbroke expects the system to save about 15 per cent in energy costs and to pay for itself within 16 months.

Battle to be cheapest supplier

The Utilities

DOMINIC LAWSON

AT FIRST flush the idea of major utilities lending their considerable corporate weight to the concept of energy efficiency is illogical. After all, if you are in the business of selling, whether it be oranges, Watts or therms, surely you must want to sell as many as possible?

But the gas and electricity utilities have recognised that the energy market as a whole in this country is virtually static. Their aim must be limited to taking an increased share of that very mature market.

The spectacle of the electricity council and British Gas engaged in their highly public duel for the hand of the domestic consumer underlines the fierceness of that battle for market share between the two state-owned empires.

Although the British Gas Corporation, assisted by bargain basement long-term contracts for North Sea natural gas, has been seen as the cheap supplier of domestic fuel, the electricity industry's campaign has proved highly successful. Over the past four years, sales of domestic electric storage heaters have increased sevenfold.

While, in the absolute sense gas is still the cheap fuel, the Electricity Supply Industry (ESI) must resort to carefully worded "energy efficient" packages — such as "Economy 7," to attract business. In the long run, however, the ESI realises that time — and geology — will work in its favour. Britain's North Sea gas will not last for ever.

The Economy 7 tariff, where the customers' storage heater receives its electricity shot for seven hours during the night is the means by which the ESI passes on to its customers the economies which are gained by running power stations 24 hours a day. Arguably however, the customer is not himself more energy-efficient, but is simply being "paid" an inducement to justify a strategy of round-the-clock operation of power stations.

Contribution

A more genuine contribution to absolute energy efficiency is the implementation of Electricity Council specifications for new housing starts. Since 1977 50,000 homes have been built to Electricity Council specifications, and these use about 30 per cent less heating energy, on average, than pre-1982 Building Regulation houses.

Although the ESI is not a manufacturer of domestic electric goods, it uses its muscles as a supplier throughout its showrooms to endorse and promote models which are thought to be the most energy-efficient.

On the industrial front, the Electricity Council's most recent contribution to energy efficiency is the launch, in May this year, of the Power for Efficiency and Productivity Awards, or PEP for short.

The idea is to encourage companies which reduce their energy costs by the adoption of an electrical process. There are both regional and national competitions, which will reward the most successful with cash prizes and an "energy-efficient" trophy.

In terms of energy saved in the short term the PEP awards are unlikely to be anything other than insignificant. The exercise is more importantly a new ploy in the ESI's propaganda campaign designed to associate electricity in the public mind with the concept of cheap energy.

However, it would be wrong to imply that the British Gas Corporation, with its access to "cheap" fuel, is any less conscious of promoting energy efficiency, than its rivals in the Electricity Supply Industry.

The British Gas Midlands Research Station has been making considerable progress in the development of new, more efficient ways of burning gas. One example is a new method of furnace heating. The new system, which is now being developed jointly with Hotwork International, has the ability to extract and utilise virtually all the heat which in conventional furnaces is discharged as high temperature gas into the atmosphere.

British Gas has now published three editions of "British Gas Directory of Energy Saving Equipment," which is used by UK overseas trade missions throughout the world.

In one area of the campaign to reduce energy consumption, British Gas has proved itself quicker off the mark than even the Energy Efficiency Office of the Department of Energy. The Government is preparing a system of labelling domestic appliances according to their running costs, to help reduce energy consumption.

Technology success lags

Combined heat and power

DAVID HELLIER

THE Government's recent decision to offer £750,000 to finance feasibility studies for schemes to heat the centres of large cities with waste heat from power stations gave a minor boost to a combined heat and power technology lobby that will not go away.

The essential idea, once presented as the answer to the nation's energy problems, is that the heat normally lost from power stations into the cooling towers, rivers or the sea could be piped instead to homes and offices as well as other work-places.

Conventional power stations operate at something like 35 per cent efficiency and the amount of fuel effectively lost into the atmosphere as low grade heat (unsuitable for commercial purposes) substantially exceeds the entire heat requirement of either UK industry or domestic consumers.

On the other hand, power stations can be built to reject heat at a higher and economically useful temperature—with a small reduction in electricity generation in steam power plant but at significant initial costs.

Combined heat and power (CHP) first became a major talking point after the first oil crisis. A decade later its supporters still claim that it can save more energy than any alternative technology, protect the environment, reduce the need for nuclear power generation, save money on Britain's balance of payments, and create jobs.

While community heating by CHP now supplies about 40 per cent of the nation's heating needs in Denmark, 25 per cent in Sweden, 8 per cent in West Germany and 30 per cent in Finland, there have been few developments in the UK and there are no major schemes in prospect.

In contrast to the active support given by governments in a number of other countries, in the UK Government policy over the years has been vaguely neutral, providing sufficient support to keep the pot bubbling but not enough for it to boil.

Before the end of this year the Government hopes to start on its latest initiative by announcing the three successful applicants of its lead city scheme.

Belfast, as the only Ulster entrant, stands a good chance of being chosen. Glasgow and Edinburgh are chasing the Scottish allocation, while the English entrants are Leicester, Liverpool, London (two separate entrants), Manchester, Sheffield and Tyneside.

Sheffield and Tyneside have probably been the most active in extending earlier studies since the consultant W. S. Atkins reported to the Department of Energy in 1982 on the comparative viability of lead city schemes.

The three selected schemes will each receive £250,000 from the Government.

It will be used for preparing a detailed prospectus with which the consortia will then attempt to raise private capital.

The schemes would involve the laying of hot water mains underneath city streets and possibly the construction of special power stations at significant investment costs. W. S. Atkins suggests that a scheme for Sheffield, for example, would have initial costs of about £350m.

Whether the initial costs are economic or not depends largely on the present and future price of alternative fuels as well as future energy needs. On this score, one barrier to CHP development has been competition from natural gas, which has always presented a cheaper option.

CHP enthusiasts argue, however, that recent developments —including the proposed Sleipner gas deal with Norway—show that gas will not always remain such an attractive alternative to solid fuels, oil and nuclear energy, all of which can be used in CHP plants.

The Atkins report concluded that the real rate of return to the investor on most of the potential schemes would be just above 5 per cent—enough to satisfy profitability criteria in the public sector but probably not enough to arouse interest in the private sector.

The Government has made it clear that it expects a large private enterprise input. For example, its financial offer is conditional on there being "substantial" private sector involvement in the consortia.

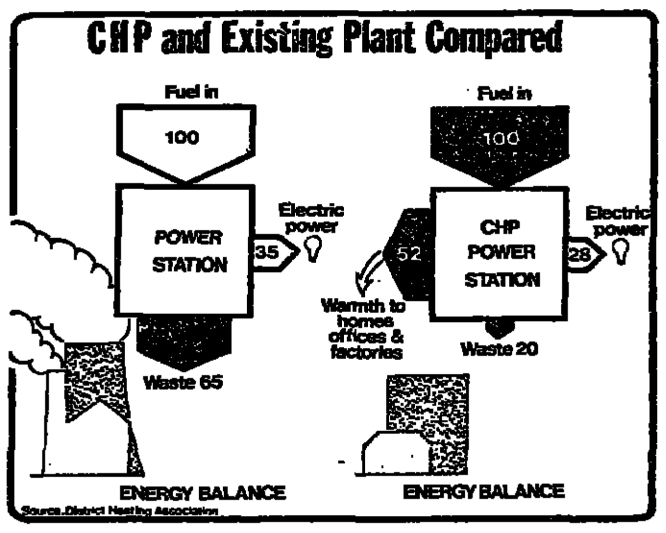
Mr William Orchard, chairman of the Combined Heat and Power Association, thinks that the Government should at least put CHP on a fair footing with other energy options.

"If the Government is really serious about private sector investment in CHP it should require that Sizewell should be funded by a private sector consortium," he says.

Mr Orchard describes the Government's £750,000 offer to the industry as "paltry" compared with the £21m of Government investment in the search for geothermal energy, the £380m paid to supplement heating bills, and the £21bn which it originally approved for the purchase of gas from Norway's Sleipner field.

He wants the Government to undertake a full macroeconomic analysis of all the energy options, looking at the effects on employment, the balance of payments and the environment.

CHP and Existing Plant Compared



Source: District Heating Association

Benefits for industry but not at home

Heat pumps

ELAINE WILLIAMS

THE HEAT pump market in the UK is still relatively small when compared to those of countries such as Sweden and West Germany.

Heat pumps are widely used in Sweden, for example, because of the large number of district heating schemes, a political decision to avoid nuclear power and the country's lack of indigenous oil and coal supplies.

Britain's heat pump manufacturers enjoy no such market advantages and are faced with a greater abundance of natural energy reserves.

The technology of electric heat pumps has been well established for many years. In principle, they work like a refrigerator, extracting low-grade heat from the air and using it to heat water.

A compressor within a refrigerator moves a fluid (the refrigerant) around a closed circuit and heat from the refrigerator compartment is taken up by the refrigerant as it evaporates and passes through a coil inside the compartment.

Compression raises the refrigerant's pressure and its temperature. Then, as the refrigerant passes through a second coil at the back of the refrigerator, the heat is given up to the air, the refrigerant condenses, moves back to the inside coil and the process starts over again.

The equipment required for an electric heat pump is simple. With an electrically-driven compressor to force gas to high pressure, they can take heat from surrounding air, liquids or the ground, depending on the design. They can turn this into space or water heating for example.

Competitive

Companies are also developing gas heat pumps for large installations.

The limited success of heat pumps in the UK means only about 2,000 systems have been installed for water heating in British homes. Manufacturers, including Eastwood Heating Developments, in Mansfield, have developed systems capable of giving out 10kW to 20kW heat and these tend to be competitive with oil-fired systems in large dwellings.

However, apart from reputable dealers, the heat pumps market has suffered from the kind of less reputable element which has also infested the solar panel and burgler alarm industries. Often this makes the benefits of installing a domestic system dubious.

Most heat pumps are air-to-water types in that they take heat from outside air and turn it into hot water. These have the advantage that they can be connected quite easily into domestic central heating systems.

Competing in this market are at least 40 suppliers and manufacturers from the UK, Denmark, West Germany, France, Japan, Italy and the Netherlands.

Reputable UK suppliers include Andrew Engineering, Trace Heat Pumps, Siemens, the York Division of Borg Warner, Toshiba and Calroex.

Demonstrate

Domestic heat pumps are more prevalent in West Germany and France though these markets have suffered recently.

Industrial and commercial applications are likely to grow more quickly than domestic ones, within the UK however, and for these sectors, the Department of Energy, through the Energy Technology Support Unit at Harwell, is running the Energy Efficiency Demonstration Scheme. There are a number of demonstration projects, many involving heat pumps — which will show any savings in energy use.

The projects range from installations in swimming pools, homes for the elderly, hotels and hospitals to industrial applications. For example, York, a heat pump company based in Basildon, Essex, has installed a system in a swimming pool at Galashields in Scotland. This is a gas-fired system and the company is assessing the technical risks such as vibration and how to maintain a working system.

It is in the swimming pool market where heat pumps have made most progress in the UK. Denco, based in Hereford, has installed gas-driven heat pumps and another is on trial at Latchmere Leisure Pool in Wandsworth, south-west London.

Heat pumps are now installed into between 10 to 20 per cent of all such buildings in Britain. Swimming pool installations are relatively easy to justify economically since there is a fairly constant demand for heat as air around the pool is changed constantly to keep humidity at an acceptable level.

In other buildings, this is not the case. Demand for space heating is seasonal and the economics therefore more uncertain. Home heating using heat pumps is likely to be limited for some time to come.

In large office and communal buildings, heat pumps can be an alternative to oil-fired boilers. Denco, for example, has installed a gas heat pump system in an elderly people's home in Oxford.

In industry, there are more obvious savings, especially where some processes involving heat are concerned: drying, heat recovery, evaporation, heating and cooling. However, heat pumps do compete with several more established heat recovery techniques.

The thermal wheel, for instance, is an air-to-air or gas-to-air heat exchanger which transfers energy to supply gases; it can recover 65 per cent of available heat. Run around coils which can recover 50 per cent of available heat are another common alternative, as are heat pipes, plate exchanges and thermosyphons.

Heat pumps for industry tend to be more specialist designed. One such system has been installed at Associated British Maltsters in Lough.

Malting involves soaking barley in water, spreading it over a large area so that some growth occurs and finally heating and drying the malt.

The Lough heat pump, which recirculates heat from hot air otherwise discharged to the outside of the building, has been operating for more than 25,000 hours. The target is to save the equivalent of 60,000 tonnes of coal a year.

Heat rejected from refrigeration and cooling systems in the food and drink industries can be put to use in providing hot water and space heating.

In the milk processing industry heat pumps are being used at Unigate in Walsall to recover heat otherwise lost during the sterilisation process. At another dairy where skimmed milk is made, steam produced during the evaporation process is recirculated to maintain the process.

Another heat pump in use is that at sweet manufacturer Smith Kendon. It has saved 80 per cent of energy cost, giving a payback for the system in only 14 months. Smith Kendon, based in Bridgend, has trebled its output of pastilles and "Juicy Jelly" product lines as sweets now take only 18 to 20 hours to dry instead of two to three days.

In the textile industry, Vitatex hopes to save 16,000 tonnes of coal by the gas engine driven heat pumps in its textile finishing works. Paper yarn makers like Somic in Preston installed heat pump humidifiers several years ago. It reduced its energy costs by two thirds and the investment paid for itself within a year.

Generally the introduction of heat pumps is slow as this technology is competing with several others ways of using energy efficiently. But the opportunites and the savings are there.

Uppsala, where the waste incinerator provides electricity for the national grid as well as the town's entire summer needs

Necessity puts Sweden at the forefront

Waste-derived fuel

MAURICE SAMUELSON

ENERGY EFFICIENCY appears to be most developed in industrialised countries with the least fuel resources of their own.

In Sweden, lack of indigenous fossil fuels as well as a national tendency towards tidiness and hygiene, have focussed attention on the suitability of burning refuse instead of conventional fuels.

Another incentive for large-scale incineration of waste is that Sweden is very short of land-fill sites — less than a third of the country's refuse is disposed of in this way.

As in other Scandinavian countries, most cities of Sweden have district heating systems, an increasing number of which are heated with waste burned in large incinerators.

According to Mr Gustaf Sundstroem, a designer of several major incineration schemes, between 70 per cent and 75 per cent of the country's refuse could be used as fuel by 1990, bringing Sweden into line with Denmark which already incinerates 75 per cent of its refuse.

A recent tour of three cities — Malmoe, Linkoeping and Uppsala — revealed the progress Sweden is making towards this goal.

At Malmoe, on Sweden's south-west coast, a large proportion of the heat in the city's district heating grid now comes from a refuse incinerator which consumes 180,000 tonnes a year, collected from a 3,000 square kilometre area with a population of 500,000.

Although Malmoe's district heating scheme was established about 25 years ago, it was originally fired by oil. Now a quarter of the city's hot water is piped underground to 85 per cent of the city's dwellings—heated by the "Sysav" waste incinerator, which helps to replace 40,000 tonnes of fuel oil a year.

The refuse is delivered to it from nine municipalities in Lund county which jointly owns the incinerator with Malmoe.

On being unloaded at the Sysav works, the refuse is dumped into a huge hangar-type bunker, which can hold enough to keep the boilers burning for nearly three days.

Three-quarters of the refuse is household garbage and the rest comes from light industries. Half consists of paper and plastic, whose calorific value is about a quarter that of oil.

Costs are kept down by selling ash from the boilers as hard core for road work. There is also a market for the scrap metal which is extracted.

The plant, employing 50 people, has been running continuously since 1976, and cost £12m to build (at 1983 prices). Its income comes from sales of heat to the Malmoe district heating grid, for which it receives £9 for every Megawatt of heat delivered.

Gases

One of the costliest parts of the plant, accounting for 15 per cent of the investment, was the equipment to remove chloride from the waste gases. Even so, the initial investment was repaid by 1981.

In contrast with the Malmoe incinerator, which is owned jointly with the suppliers of the waste, Linkoeping's is owned entirely by the municipality, which uses the heat.

The city, headquarters of Sweden's SAAB aircraft and motor combine, has had a district heating net since 1957. Previously heated from an old power station in the city centre, it distributes heat to 90 per cent of the city's 35,000 households.

A new plant has been built on the outskirts of Linkoeping which will burn 300,000 tonnes of refuse a year, delivered from up to 100 km away.

Linkoeping buys about 100 lorry loads of refuse a day for about £1.15 a tonne and shares the cost of transporting it with the municipalities which collect it.

During mid-summer, while two of the boilers are being serviced, waste deliveries are suspended and a third boiler is run on chippings from forestry waste which are prepared in the plant's own mill.

Before the present plant was built, oil provided 95 per cent of the city's district heating needs. By 1986, 35 per cent of the heating will be provided by incinerated waste; wood chips will provide 29 per cent; imported coal 23 per cent; and oil only 3.7 per cent.

Although the city has no shortage of willing suppliers of coal, it wants to have as much control as possible over its fuel supply. The municipality is therefore considering buying part of a dedicated mine in the U.S. (The Swedish Government, which has an environmental bias against coal, is said to oppose the scheme.)

At Uppsala, the waste incinerator provides electricity for the national grid as well as heat for its inhabitants' entire summer needs.

Run by the municipally-owned UKAB (Uppsala Kraftwarm AB), the plant was built in the early 1960s and initially ran on oil. Work on the incinerator began in 1965 and in 1973 a back pressure turbine was added to supply Combined Heat and Power (CHP).

Of the 250,000 tonnes of refuse a year which are burned in the plant, some 100,000 tonnes comes from Stockholm, the Swedish capital 70 km away.

Stockholm itself originally hoped to solve its waste disposal problems by sorting it and recycling its components in other ways.

However, having built a £25m recycling plant, it still found that it had a big waste disposal problem on its hands, and sells it to the UKAB incinerator for £4 a tonne. Stockholm has subsequently built two CHP stations of its own, which help to burn some of the refuse it does not sell to Uppsala.

Meanwhile, with UKAB's appetite for fuel outstripping its supplies of waste, the Uppsala plant is being fitted with new turbine-generators to be fuelled by coal and peat. The coal will be imported and the peat will be brought from Swedish bogs some 400 km away.

Sharp decline in funds

Insulation

ANDREW GOWERS

BRITAIN'S insulation industry is approaching this winter in a state of considerable uncertainty. That it has a huge potential market is certain. What is much less sure is the legislative, financial and political environment in which the industry will have to work.

Industry representatives estimate that the market for improvements in energy efficiency could amount to about £500m a year. More than 60 per cent of homes in England and Wales do not come up to the standards set by building regulations for new homes.

But the fact is that, despite vigorous lip-service by Conservative politicians both in and out of office, to the idea of improving energy efficiency of homes and businesses, there has been a sharp decline in the public funds available to householders and industrialists since the Tories came to power in 1979.

And, as conservation lobbyists will readily admit, insulation is not a glamorous business; it needs support from public funds if it is to gain ground.

The only energy-saving measure in housing which receives official grant aid at present is loft insulation. Most loft insulation is now two-thirds funded by government. But as MPs pointed out in a recent Commons debate, this is not the most energy-efficient method; more heat is lost through walls and floors than through the roof.

Building regulations for new houses, though improved in 1982 with regard to roofs and walls, are still regarded as inadequate. There is no provision for floor insulation or thermostat controls. The market for floor insulation is virtually non-existent.

The industry feels let down by government. According to Mr Ian Munro, director general of Eurisol (the organisation representing four major mineral fibre manufacturers) companies were exhorted by politicians in the 1970s to boost capacity to meet expanding demand for insulation. They invested £80m in effectively doubling their capacity, and until 1980 the industry grew at a steady pace.

Now, the same companies—Cape Insulation, Fibreglass, Gyproc and Rockwool—are working at 60 per cent of capacity and have laid off 2,000 workers.

The main reason for the slowdown appears to be the decline of local authority spending on grants for insulation. This partly stems from the Government's introduction of block grants to local authorities in 1980, thus reducing the amount of funds specifically earmarked for insulation of council homes.

The pressure on local authority spending and the low priority accorded to insulation were both illustrated vividly earlier this year when the Welsh Office withdrew loft insulation grants as part of a squeeze on councils' capital expenditure on housing.

As one conservationist observed, that incident demonstrated the relative financial impotence of Mr Peter Walker's Energy Efficiency Office, if nothing else.

Other recent Government measures which have harmed the insulation business include:

● The halving and eventual abolition of tax allowances for capital expenditure on industrial buildings announced in this year's Budget.

● The introduction of VAT on building works. This move, which means that all energy-saving measures cost 15 per cent more since June, has been cited by opposition energy spokesmen as signs of the Government's meanness towards insulation.

But Government recalcitrance is not the only reason for the poor performance of the insulation industry in recent years. It has also had to contend with a poor public image —partly as a result of inherent dullness and partly because of controversy over individual insulation methods such as filling of wall cavities with urea formaldehyde (UF) foam.

Manufacturers say the doubts over the safety of UF foam last year scared householders away from wall insulation in general. The problem was compounded by the activities of unscrupulous contractors, who got the business bad name, and the stronger appeal of less-efficient options such as double-glazing, which has been promoted highly-successfully in recent years.

However, the insulation industry is now beginning to fight back. It is heartened by Mr Walker's public sympathy for its cause, and in particular by the Government-backed Home Energy Advice and Treatment Scheme (Heat) which is currently being tried out in the Midlands.

Under the £120,000 HEAT programme—funded by the Department of Energy, the Anglia Building Society and a number of insulation, double-glazing and energy equipment manufacturers—a qualified surveyor will be employed to carry out energy audits on houses up for sale.

Mr Walker's eventual idea is to give houses a so-called "energy-rating," along the lines of schemes in some parts of the United States. This would give prospective house-buyers an idea of the fuel bills they are likely to face.

A host of local voluntary initiatives to improve energy saving in poor people's housing is also improving morale in the industry.

But there is still an enormous way to go. Council houses, in particular, are seriously in need of more insulation.

Practical ideas from a book

Principles of management

MAURICE SAMUELSON

THE CONSERVATION movement in Britain has progressed from preaching about the morality of saving energy to putting it into practice, with the prospect of rich commercial rewards.

Typical of this change is a booklet, "101 Ways to Improve Energy Efficiency." It typifies the partnership which the Department of Energy is trying to forge with the private sector in advancing the cause of energy efficiency.

Mr Peter Heslop, author of the 128-page booklet, is the editor of the Government's Energy Management Newspaper. But it is published by Energy Publications, a private publishing house which has carved out a niche for itself with practical books about energy markets and applications.

In partnership with the British Gas Corporation, it has produced a directory of energy-saving equipment, a biennial publication of which three editions have so far appeared.

Other recent books are an Energy Managers' Workbook and Energy Management Systems in Buildings.

The Heslop book is both simpler and more ambitious than either of these two somewhat specialised publications. The author describes it as a brief compendium of ideas to help the plant engineer or energy manager.

It does not intend to be comprehensive but rather a selection of useful ideas taken up by British industry, commerce and public administration. Each idea is expressed with pithy brevity and supported by a short case study.

The ideas, divided into five broad sections, progress from the general towards the specific.

The fourth section, dealing with process economy and heat recovery, concentrates by definition on industrial situations, but the others apply to commercial and public sector organisations. Pointing out ways of saving energy by better housekeeping, improved lighting and heating.

The sheer multiplicity of case histories bears testimony to the widespread awareness of the need to cut energy bills as well as to the inventiveness which this is stimulating.

Some of the steps which have been taken are disarmingly simple: Terry's of York, the chocolate manufacturer, is saving £300 a year merely by cutting the temperature of its plant's hot water system by 10 degrees Fahrenheit to 170 degrees.

At a primary school's open air swimming pool, heating costs were halved by covering the surface of the water with a translucent floating plastic cover, thus retaining the pool's solar heat.

More complicated measures involve the use of heat exchangers, heat wheels, recuperators, recovery of flash steam, and use of heat from power turbines for process work.

Recognition that energy saving technology is still rapidly developing is acknowledged in the book's final sector, which points to improvements which may involve heavy investment.

They include the uses of aerial infra-red surveys to measure heat loss; simulating energy use on a computer to identify wastage; the increasing use of fluidised bed combustion technology; of solar energy; of solar heating and of combined heat and power.

Andrew Buckley, whose company published the Heslop manual, is planning several more ventures aimed, he says, at closing the gap between the user of energy and the manufacturers of energy efficiency equipment. He talks of "oiling the wheels of information transfer between the equipment industry and the energy consumer."

His plans closely harmonise with what he sees as the Government's switch of emphasis from subsidising actual conservation projects to supplying more helpful information for energy managers and the general public.

It is a role also being carried out by other private sector interests, notably the lively monthly magazine "Energy Manager," which provides wide-ranging and often critical coverage of the whole energy scene.

101 Ways to Improve Energy Efficiency, by Peter Heslop: £9.50; Energy Management Systems in Buildings, by Philip Gardner, £15; Energy Manager's Workbook, £13.50: all published by Energy Publications, PO Box 147, Newmarket CB8 9AL.

Energy Manager (monthly), Century House, Tanner Street, London SE1.

Close eye on the oil market

National policies

MAURICE SAMUELSON

"LONG-TERM prospects for meeting energy requirements and maintaining energy security are now better than at any time since 1973. There has been a substantial improvement in the efficiency with which energy is used in most IEA countries. It would, however, be premature to conclude that there can be a relaxation of efforts."—International Energy Agency, July 1984.

This semi-comforting statement appears in the annual review of energy policies of the members of the International Energy Agency, the Paris-based body set up to co-ordinate the response of industrialised non-Communist countries to the 1974 oil price explosions.

Its latest report forecasts that the oil market should remain soft through the later 1980s and that big oil price rises are unlikely unless there is a big supply shortage. But it warns that because of declining oil output in the industrialised nations the oil market could become tight beyond 1990.

The downward revision of the IEA's estimates of demand for oil from the Organisation of Petroleum Exporting Countries (Opec) partly reflects the success of IEA countries' conservation measures and the switch from oil to other fuels.

An important index of conservation efforts is energy intensity—the ratio between oil demand and unit of output—which in IEA countries as a whole has fallen by 30.4 per cent between 1973 and 1983.

Besides its global survey of the energy markets, the IEA charts the progress towards energy efficiency of its 21 member States and highlights both the similarities and the differences in their individual approaches.

By 1983, the report says, IEA countries considered oil and energy problems to be less urgent than in the past. There were fewer applications for Government aid under retrofit and oil conversion programmes and car buyers were moving back towards larger and more powerful vehicles in many countries, especially the U.S.

The trend is likely to be reinforced in some countries by reductions in Government budgets for energy efficiency and oil substitution investments. Among the more important budget cuts, the report listed:

● The Australian Government's decision to terminate subsidies for industrial conversion from oil and LPG to non-oil energy sources;

● Denmark's termination of a programme of grants for industrial energy saving investments which had been available since 1979, as well as a retrofit scheme for existing homes;

● The ending in 1982 of the West German home retrofit programme which, in financial terms, had been one of the most important programmes in the IEA, and its continuation on a much more limited basis;

● The Netherlands' exclusion of owner-occupied dwellings from eligibility for financial assistance in 1982;

● The reduction in the U.S. of funding for energy conservation programmes.

On the other hand, with oil and other energy prices still high, a number of governments still see the need to increase their policy efforts to promote energy efficiency.

For instance, Australia, Austria, Canada, Japan, Luxembourg, Portugal, Turkey and the UK have increased their fuel efficiency and oil substitution budgets or launched new policy initiatives.

Australia has broadened the scope of its national energy conservation programme from petrol saving to the conservation of all forms of energy in all the main sectors of the economy. It has also changed the emphasis of its publicity away from the oil shortage issue to the more particularised theme of saving energy to save money.

In Austria a new law to promote district heating and combined heat and power generation took effect in January 1983, while Belgium raised tax deductions for industrial conservation investments in 1982.

Incentives

Sweden expanded a 25 per cent investment subsidy for conversion from oil to peat burning so that it was now available for conversion to any home-produced fuel.

In Italy, a new Bill provides incentives and other measures for conservation and fuel switching.

While the IEA comments frankly on individual countries' performances, it refrains from the kind of sharp comparisons which appeared this year in a report by the European Economic Communities Commission in Brussels on EEC countries.

It found that the UK, Ireland and Greece were the three least efficient nations in Europe in their use of energy, while France and Denmark were the most effective savers. The report was prepared by the European Commission staff of the Energy Directorate in Brussels.

Whereas Denmark had saved 30 per cent and France 25 per cent of energy in the industrial and housing sectors, the UK had reduced by just 17 per cent.

The report acknowledged that different levels of economic activity in the various countries could affect energy efficiency, but argued that "even allowing for these differences, the Danish performance is striking; so too is the achievement of a significant reduction in energy intensity in France and West Germany from an already low base in 1973."

Seizing on these comparisons the Association for the Conservation of Energy, which acts as a ginger group for equipment manufacturers, this year compiled its own study of different national energy-saving programmes.

Its warmest praise was reserved for France, which has entrusted energy conservation to a strong, single semi-autonomous body. Describing the French arrangements as "the antithesis of the British example," the association says that "in Britain diffuse responsibility and a lack of political will led to a weak policy and a timid publicity profile.

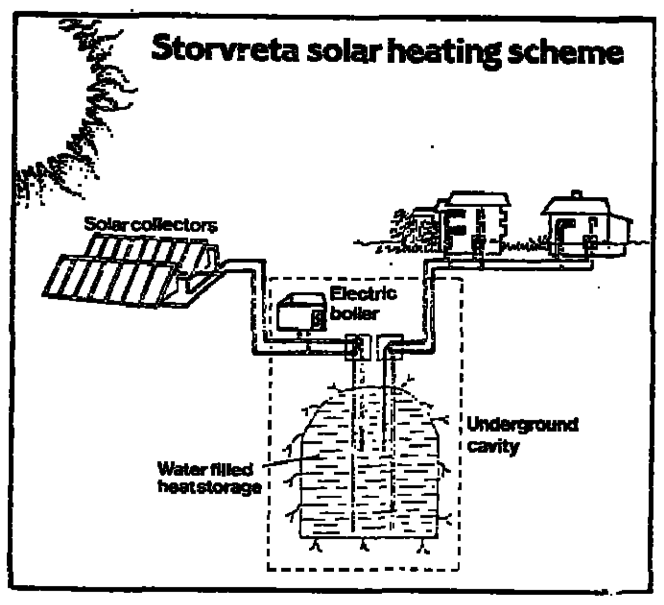
"In France, centralised responsibility . . . has resulted in a clear and highly visible conservation policy. This policy is leading to a level of investment in energy saving far greater than that of the UK.

"The French experience is a valuable model for other nations to learn by; it is a model of what can be achieved by clear direction and a strong will for success."

Energy Policies and Programmes of IEA Countries: 1983 Review, International Energy Agency, Paris;

Review of Member States' Energy Policies: Report to European Economic Council of Ministers, Brussels COM (84) 88.

Administering Energy Saving: Evaluation of the administration of energy conservation programmes by European Governments; Association for the Conservation of Energy, London.



A project to test solar heating in a larger residential area is being undertaken in Sweden by the UKAB, Uppsala's district heating authority. A development of 550 homes being built at Storvreta will use a system involving solar collectors to heat a 100,000m³ underground water storage cavity so that heat can be supplied via the district network during the winter months as well as the summer.

UK COMPANY NEWS

French 'second market' trust launch in London

A HIGHLY unusual investment trust, specialising in the French equivalent of Britain's USM, is being launched on the London stock market.

Brokers Rowe and Pitman and Lombard Odier International Portfolio Management, the UK investment arm of a Swiss bank of similar name, have got together to form a £3m trust for investors wanting to follow the "second market" in France. The trust is called **Second Market Investment Company.**

The new company has already raised its £3m through a share placing, largely with institutions. Bank of Scotland pension fund has a 16.6 per cent stake, as does Citibank, acting as an investment manager for clients, and Standard Life Insurance.

Another significant holder is Westgate Insurance with a 10 per cent holding. Westgate is the UK vehicle for the French insurance company Group Drouot. It is this link which Rowe and Pitman hope will enable the new trust to invest well in the French secondary market.

Group Drouot has been involved in small company investment in France for more than a decade and has been a significant investor in the French secondary market since it was established in February 1983. To date, 82 companies have joined that market and their current total capitalisation is over FFr 14bn (£1.2bn).

The share placing in Second Market amounts to 30m 5p shares at a price of 10p each. Dealings are expected to start on Thursday.

The structure of the company gives the board headroom of a further 10m shares before it reaches the ceiling of its existing authorised capital. So far no firm decisions have been taken on how to expand the company in the future if demand permits. The article allows the board to either issue further shares or raise borrowings once the £3m is fully invested.

BOARD MEETINGS

The following companies have notified dates of board meetings to the Stock Exchange. Such meetings are usually held for the purpose of considering dividends. Official indications are not available as to whether the dividends are interims or finals and the subdivisions shown below are based mainly on last year's timetable.

TODAY

Interims:—B.S.G. International, Baillie Gifford Technology, Currys, Ecobric, Kleinwort Benson Gilt Fund, Lamont, John Menzies, Rugby Portland Cement, Spong, TR Pacific Basin Investment Trust.

Finals:—Baltic Leasing, Blue Bird Confectionery, Elders IXL, FII, Godwin, Mills and Allen International.

FUTURE DATES

Interims:—

British Dredging	Oct 9
Bruntons (Musselburgh)	Oct 5
English National Investment	Oct 23
Howden-Stuart Plant	Oct 4
London and Edinburgh Trust	Oct 8
Martin (Albert)	Oct 2
Tozer Kemsley and Millbourn	Oct 5
Ward White	Oct 11

Finals:—

London Private Health	Oct 4
Merlar Estates	Oct 3
Pearce (C. H.)	Oct 11
Sharpe (Charles)	Oct 4
Strong and Fisher	Oct 2

Eucalyptus Pulp Mills maintains recovery

THE STRONG recovery seen at the last year-end at **Eucalyptus Pulp Mills** continued into the opening half of the current year, and pre-tax profits were £3.35m compared with a loss of £1.09m. At the year-end the group saw a turnround and reported profits of £850,502.

There was a substantial reduction in the provision for unrealised external exchange losses and the figure was down from £1.09m to £128,792.

Group turnover improved from £8.08m to £11.94m. *Trading profits* soared from £6,214 to £3.48m. Tax was considerably higher at £440,221 compared with £3,258 and the profit attributable to minorities was £201,696 (£72,828 loss), leaving profit attributable to members at £2.71m (£1.02m loss).

After transfer to non-distributable reserve, retained profits were £2.28m against losses of £1.27m. Stated earnings per 25p share were 72.8p (27.3p loss).

Commenting on the six months figures, the directors say that the U.S. dollar continued its dominance of the world's exchanges, while the Portuguese escudo has maintained its "crawling peg" devaluation policy of 1 per cent per month.

Pulp prices continued to *strengthen in dollar terms, and* this factor, more than any other, is reflected in the group's results.

While selling prices are not expected to harden any further before the beginning of next year, the company's order books are fully committed for the rest of the year.

The board has requested its Portuguese company, Companhia de Celulose do Caima SARL (Caima), to petition the Portuguese authorities for funds to pay a modest dividend. Subject to their approval of this remittance, and subsequent receipt of cash, the board hopes that it will be in a position to approve payment of approximately 3p per share before the year-end.

The board is confident that the full year will demonstrate a satisfactory return to profitability.

Commodities loss hits G. Wills

LOSSES OF £442,000 in its commodities division have hit *interim results of importer* and exporter, **George Wills & Sons (Holdings).** Pretax profits for the first half of 1984 fell from £620,000 to £251,000, on a higher turnover of *£60.31m, against* £42.73m.

The directors warn that the group's original budget for the year is no longer attainable but, in anticipation of achieving a much improved second half, an unchanged interim dividend of 2.5p has been declared. Last *year's total payment was 8p on* £610,000 taxable profits.

The directors explain that the commodities losses have arisen through a combination of adverse market movements in edible oils, the strength of the U.S. dollar and the effects of the EEC *directive on milk production.*

The same factors have affected other companies with which Wills trades and a further £286,000 has accordingly been *provided within the selling and* administration for defaults and bad debts.

Although further losses may occur as the exposure is reduced to a minimum, the directors are confident that the problems in the division will be resolved by the end of the year following *reorganisation and management* changes.

The group has also experienced disappointing results in its import division, which encountered difficult trading conditions, but a better second half is expected.

The setbacks are, however, offset to some extent by better than anticipated results from the export trade finance division, which also benefited from *exceptional non-recurring income of* £419,000.

The directors say the investment in the associated company, CT Group, is proving very satisfactory and a further profit of £80,000 was realised on the sale of an investment.

After a tax charge of £117,000, against £260,000, and an extraordinary credit this time of £80,000, attributable profits were down from £340,000 to £214,00. Earnings per 25p share dropped from *5.6p to 2.2p.*

COMPANY NEWS IN BRIEF

As forewarned taxable profits at **Bentalls,** department store operator, fell in the first six months to July 28, 1984 but since then trade has been a little more encouraging.

Turnover for the opening period amounted to £26.24m, against £25.67m, and profits totalled £364,000 compared with £552,000.

The interim dividend is being held at 0.35p. Earnings per share dipped from 0.79p to 0.6p after tax of £114,000 (£222,000).

* * *

Taxable profit at **Dowding & Mills,** electrical and mechanical engineer, increased by £665,000 to £2.61m in the year to end June 1984, from turnover up from £18.1m to £21.31m.

The final dividend of 1.5p net per 10p share lifts the total from 2.15p to 2.45p, covered by earnings up from 4.63p to 5.42p per share.

The directors state that the company has had a reasonably good start to the current year and provided there is no major downturn in industrial activity, half year results will be "at least equal" to last year's.

* * *

Pre-tax profits of the **W. W. Group,** textiles and carpets, improved from £267,925 to £404,914 over the first half of 1984 but the net interim dividend is being held at 1.94p per 25p share.

Current sales and profit levels *give confidence that improved* results will be achieved for the full year, although the miners' strike is having an adverse effect on trade throughout the North of England.

First half earnings per share rose to 10.32p (7.78p) and turn-

* * *

Operating profits fell at **Beauford Group** from £301,333 to £278,950 over the first six months of 1984 on turnover up at £3.83m *compared with £3.26m.*

Taxable profits, however, emerged higher at £248,131, against £224,489, with the absence this time of any exceptional debits. Interest charges rose from £21,816 to £30,879.

Beauford manufacturers heavy machine tools, plant and spares for steel and other industries.

Tax payable amounted to £108,000 (£100,000), after which stated earnings per share rose *by 0.5p to 4.3p. The interim* dividend is being lifted from 1.4p to 1.5p.

* * *

First-half 1984 profits of **Aberdeen Construction Group** fell by £0.4m to £1.24m, reflecting the effect of severe storms in the early months of the year. However, in subsequent months trading has improved and it is expected that full-year profits will be in line with 1983's £4.66m.

External turnover improved from £40.55m to £42.48m. Rents and net interest received added £464,000 (£99,000), leaving the pre-tax figures marginally lower at £1.71m (£1.74m). Stated earnings per 25p share were 5.65p (6.13p), but the interim dividend is 0.1p higher at 2.2p net.

* * *

Pre-tax profits of £102,000 were made by the **Solicitors' Law Stationery Society** *during the six* months ended June 30 1984.

Although this figure was considerably down on the £230,000 made *in the corresponding* period last year, group chairman, Sir Edward Singleton, says it confirms the continuation of the recovery noted in the first half of 1983. There was a loss of £160,000 recorded in the second half of 1983.

Oyez Press, the printing subsidiary, was the main contributor. Turnover rose by £591,000 to £10.76m.

BASE LENDING RATES

A.B.N. Bank	10½%
Allied Irish Bank	10½%
Amro Bank	10½%
Henry Ansbacher	10½%
Armco Trust Ltd.	11 %
Associates Cap. Corp.	10½%
Banco de Bilbao	10½%
Bank Hapoalim	10½%
BCCI	10½%
Bank of Ireland	10½%
Bank of Cyprus	10½%
Bank of India	10½%
Bank of Scotland	10½%
Banque Belge Ltd.	10½%
Barclays Bank	10½%
Beneficial Trust Ltd.	11½%
Brit. Bank of Mid. East	10½%
■ Brown Shipley	10½%
CL Bank Nederland	10½%
Canada Permn't Trust	10½%
Cayzer Ltd.	10½%
Cedar Holdings	11 %
■ Charterhouse Japhet	10½%
Choulartons	11½%
Citibank NA	10½%
Citibank Savings	‡12 %
Clydesdale Bank	10½%
C. E. Coates & Co. Ltd.	11½%
Comm. Bk. N. East	10½%
Consolidated Credits	10½%
Co-operative Bank	*10½%
The Cyprus Popular Bk	10½%
Dunbar & Co. Ltd.	10½%
Duncan Lawrie	10½%
E. T. Trust	11 %
Exeter Trust Ltd.	11 %
First Nat. Fin. Corp.	13 %
First Nat. Secs. Ltd.	12 %
■ Robert Fleming & Co.	10½%
Robert Fraser	11 %
Grindlays Bank	‡10½%
■ Guinness Mahon	10½%
■ Hambros Bank	10½%
Heritable & Gen. Trust	10½%
■ Hill Samuel	§10½%
C. Hoare & Co.	†10½%
Hongkong & Shanghai	10½%
Kingsnorth Trust Ltd.	10 %
Knowsley & Co. Ltd.	11 %
Lloyds Bank	10½%
Mallinhall Limited	10½%
Edward Manson & Co.	11½%
Meghraj and Sons Ltd.	10½%
Midland Bank	10½%
■ Morgan Grenfell	10½%
National Bk. of Kuwait	10½%
National Girobank	10½%
National Westminster	10½%
Norwich Gen. Tst.	10½%
People's Tst. & Sv. Ltd.	12 %
R. Raphael & Sons	10½%
P. S. Refson & Co.	10½%
Roxburghe Guarantee	11½%
Royal Bk. of Scotland	10½%
Royal Trust Co. Canada	10½%
■ J Henry Schroder Wagg	10½%
Standard Chartered	‖10½%
Trade Dev. Bank	10½%
TCB	10½%
Trustee Savings Bank	10½%
United Bank of Kuwait	10½%
United Mizrahi Bank	10½%
Volkskas Limited	10½%
Westpac Banking Corp.	10½%
Whiteaway Laidlaw	11 %
Williams & Glyn's	10½%
Wintrust Secs. Ltd.	10½%
Yorkshire Bank	10½%

■ Members of the Accepting Houses Committee.
* 7-day deposits 7.25%, 1-month 8.00%. Fixed rate 12 months £2,500 9.75% £10,000, 12 months 10.00%.
† 7 day deposits on sums of under £10,000 7¼%, £10,000 up to £50,000 8%, £50,000 and over 8¼%.
‡ Call deposits £1,000 and over 7¼%.
‖ 21-day deposits over £1,000 8½%.
§ Demand deposits 7¼%.
¶ Mortgage base rate.

RECENT ISSUES

EQUITIES

Issue price	Amount paid up	Latest Renunc. date	1984 High	1984 Low	Stock	Closing price	+ or −	Net Div.	Times covered	Gross Yield	P.E. Ratio
‡166	F.P.	—	212	198	✠Brit. Bloodstock	212	+8	g7.95	2.3	4.9	12.0
‡88	F.P.	—	87	85	✠Comp. Fin. Servs. 5p	85	.....	bg3.0	2.5	3.4	14.9
[illegible]	F.P.	—	106	100	Domin'n Int. High Inc.	105	−1	16.0	—	21.8	—
[illegible]	F.P.	—	18	15	Do. Warrants	18	+1	—	—	—	—
105	F.P.	5/10	150	140	✠Extract Wool 50p	140	....	bg4.69	2.2	3.3	17.0
‖	F.P.	—	39	30	F.&C. Pacific Inv Wrrts	39	+1	—	—	—	—
§74	F.P.	24/10	92	78	✠Fergabrook 20p	92	+1	b3.2	2.5	5.0	11.3
§47	F.P.	2/10	49	45	✠Hoggett Bowers 5p	47	....	bg10	6.1	3.0	7.8
‖	F.P.	26/9	140	120	✠Ind. Scot. Energy £1	135	+5	—	—	—	—
30	F.P.	26/10	35	31	✠Paul Michael L'w 5p	31	−1	T1.25	3.0	5.8	8.2
[illegible]	F.P.	24/10	6½	5	S & U Stores Warrants	6½	...	—	—	—	—
§75	F.P.	—	81	76	✠Trade Promotion 10p	78	.....	b3.15	2.0	5.8	12.4
[illegible]	F.P.	12/10	85	80	Young (H.)	80	.....	—	—	—	◆

FIXED INTEREST STOCKS

Issue price £	Amount paid up	Latest Renunc. date	1984 High	1984 Low	Stock	Closing price £	+ or −
‖	F.P.	—	116	107	✠Applied Botanics 12% Cnv.Uns.'95/2000	112	.....
‡99.00	F.P.	10/1	11¼	8½	Bristol Waterworks 11¾% Red.Deb.2004	11¼	+¼
‡99.57	F.P.	1/11	100½	99¾	Bournemouth Water 8% Red.Prf. 1988	99¾	.....
‡99.57	£10	29/11	11	10¼	Cambridge Water 8% Red. Prf. 1988	10¼	.....
‡100	£10	23/11	21	10½	Do. 13% Red. Deb. 2004	19	.....
‡98.671	F.P.	1/10	100¼	9	Edinburgh Inv. Tst. 11¾% Deb 2014	100¼	+½
‡99	F.P.	6/12	10⅞	10	Essex Water 8% Red. Prf. 1989	99	.....
90.52	£30	—	31¼	28⅝	European Inv. Bk. 10⅞% Ln. 2004	31⅜	−⅛
99.161	£30	17/1	31⅝	28⅝	Intl. Bk. for Recon. & Dev. 11½% Ln. 2003	31⅛	−⅛
‡98.162	£25	22/11	30¾	22	Marley 11⅞% Deb. 2009	30¾	−⅛
—	F.P.	—	100	99¼	Nationwide 11¼% 27/8/85	99¾	....
—	F.P.	—	100⅛	99¾	" 11⅛% 9/9/85	100	−⅛
100	F.P.	26/10	116	106	T.V. South 10% Sub. Conv. Ln. 1997	115	.....
‖	Nil	14/9	50pm	18pm	Trans-Natal Coal 12.7% Uns. Cnv. Deb	18pm	....
£100	F.P.	27/9	104½	100½	York Waterworks 13% Red Deb. 1994	104	....

"RIGHTS" OFFERS

Issue price	Amount paid up	Latest Renunc. date ■	1984 High	1984 Low	Stock	Closing price	+ or −
8	Nil	22/11	2½pm	½pm	Astra Ind. 10p	1pm	−¼
50	F.P.	28/9	55	60	✠Gaunt (Rowland)	50	−1½
38	Nil	31/10	16pm	6pm	Meggitt 5p	12pm	−3
40	F.P.	26/10	48	40	Morley (R.H.) 10p	40	....
200	F.P.	7/11	543	470	NatWest Bank £1	543	+10
150	Nil	23/11	45pm	33pm	Securicor Group	45pm	.....
136	Nil	23/11	45pm	34pm	Do. 'A' N-V	45pm	.....
142	Nil	23/11	47pm	32pm	Security Services	47pm	....
A$0.50	Nil	31/10	76pm	72pm	TNT A$0.50	72pm	−3

Renunciation date usually last day for dealing free of stamp duty. *b* Figures based on prospectus estimates. *d* Dividend rate paid or payable on part of capital; cover based on dividend on full capital. *g* Assumed dividend and yield. *u* Forecast dividend cover based on previous year's earnings. C Canadian. F Dividend and yield based on prospectus or other official estimates for 1984. H Dividend and yield based on prospectus or other official estimates for 1983-84. Q Gross. *p* Pence unless otherwise indicated. ¶ Issued by tender. ‖ Offered holders of ordinary shares as a "rights." ** Issued by way of capitalisation. §§ Reintroduced. ¶¶ Issued in connection with reorganisation merger or takeover. ■ Allotment letters (or fully-paid). ‖‖ Introduction. ✠ Unlisted Securities Market. § Placing price. T Figures assumed.

PENDING DIVIDENDS

Dates when some of the more important company dividend statements may be expected in the next few weeks are given in the following table. The dates shown are those of last year's announcements except where the forthcoming board meetings (indicated thus*) have been officially notified. Dividends to be declared *will not necessarily be at the amounts in the column headed* "Announcement last year."

	Date	Announcement last year
**Anglo Am Cpn OFS Goldmines*	Oct 18	Finals due
Assoc. Brit Foods	Nov 7	Interim 1.6
*BSG	Oct 1	Interim 0.35
Bank of Ireland	Nov 10	Interim 5.5
Beazer (C.H.)	Nov 8	Final 6.0
*Bowthorpe	Oct 9	Interim 1.84
*British Home Stores	Oct 17	Interim 1.75
Brooke Bond	*Oct 18*	*Final 2.85*
Cater Allen	Nov 8	Interim 8.0
Chubb	Nov 9	Interim 1.95
*Currys	Oct 1	Interim 1.4
*Debenhams	Oct 5	Interim 2.2
De La Rue	Nov 8	Interim 6.6
*Eastern Produce	Oct 4	Interim 1.5
Electrocomponents	Nov 7	Interim 1.3
Ferguson *Industrial*	Nov 7	Interim 1.3
Flight Refuelling	Nov 1	Interim 0.9
Gerrard and National	Oct 20	Interim 3
Gill and Duffus	Oct 26	Interim 4
*Glaxo	Oct 8	Final 6.25
Great Portland Estates	Nov 9	Interim 1.429
*Hambro Life	Oct 11	Interim 4.7
**Hammerson* Prop	Oct 5	Interim 3.0
Harrisons and Crosfield	Oct 18	Interim 8
Hawker Siddeley	Oct 19	Interim due
Hepworth (J.)	Nov 2	Final 3.91
*Higgs & Hill	Oct 10	Interim 4.0
Highland Distls	Oct 24	Final 2.23
Hill (Philip) *Inv Trust*	*Oct 27*	Interim 2
Hill Samuel	Nov 9	Interim 3.0
*Ibstock Johnsen	Oct 8	Interim 1.75
LWT	Nov 10	Final 6.582
*Laing Properties	Oct 2	Interim 2.25
Lucas Inds	Nov 7	Final 6.0
Marks and Spencer	Nov 2	Interim 2.05
*Menzies (J.)	Oct 1	Final 9.0
Mowlem (John)	Oct 13	Interim 2.2
*Peachey Prop	Oct 18	Final 3.75
Reed Intl	Nov 1	Interim 5.0
*Rugby Portland Cement	Oct 1	Interim 2.7
Sainsbury (J.)	Nov 9	Interim 2.4
*Scottish Met Prop	Oct 5	Final 2.0
Sears	Oct 4	Interim 0.7
Smiths Inds	Nov 9	Final 7.5
Staveley Inds	*Nov 10*	*Interim 4.5*
*Telephone Rentals	Oct 11	Interim 2
UEI	Oct 14	Interim 2.0
Valor	Nov 10	Interim 1.074
Whitbread	Nov 8	Interim 1.85
*Wolseley-Hughes	Nov 6	Final 10.81

* Board meeting intimated. † Rights issue since made. ‡ Tax free. § Scrip issue since made. ¶ Forecast.

Toye progresses

Trading at **Toye and Company** continues at an improved level, say the directors, and pre-tax *profits in the first half* of 1984 rose from £131,000 to £211,000.

Sales of this manufacturer of civil and military regalia and jewellery, improved from £3.2m to £3.53m. No interim dividend is again being paid—last year's single payment amounted to 2.25p net. First-half tax was *£20,000 higher at £61,000,* and stated earnings per 25p share rose from 3.97p to 6.66p.

The directors expect continued progress for the remainder of the year. They say the sales have increased by some 10 per cent as compared with the previous year, and order books suggest that the increase should be maintained.

Ramar Textiles

Ramar Textiles, maker and distributor of ladies' and children's clothing, raised pre-tax profits by 15.9 per cent from £502,614 to £582,544 for the year ended May 25 1984. Turnover rose by over 19 per cent to £18.56m, against £15.58m.

Mr M. Radin, the chairman, says the company has a full order *book for its autumn season's* goods and its selling programme for the spring season is virtually completed. The board remains confident that next year should again show increased profits.

Stated 1983-84 earnings per 5p share were 3.94p (3.52p) basic, or 3.05p (2.75p) fully diluted. The net dividend is up by 50 per cent to 1.5p (1p).

UK COMPANY NEWS

Redland confident of further advance

Redland, supplier of materials and services to the construction industry, felt confident about achieving a further advance in group performance in the current year to end March 1985, Mr C. R. Corness, the chairman, told the annual meeting. Beyond that, he said he did not pretend to predict with any accuracy.

A rise in the real value of all construction work of 4 per cent was expected to be followed by a further increase of 3 per cent in 1984. Trading conditions remained favourable in Australia and the U.S. East Germany was about level with last year, and there were a number of special factors coalescing to assist the company's UK results.

Provided the miners' strike did not worsen in the current year, the company still expected Cawoods to perform at or near its budgeted level. While if the dispute was brought to an earlier conclusion, Redland would expect the replenishment of coal stocks by industry to have a favourable impact on sales volumes and, therefore, earnings.

Problems in the U.S. and Middle East hit Oilfield Inspection

AS PREDICTED, the first half of 1984 proved to be a very difficult period for Oilfield Inspection Services Group, with margins under severe pressure and a lower than anticipated level of sales.

This resulted in a pre-tax loss for the period of £166,000, as against a £625,000 profit last time. The company, which is quoted on the Unlisted Securities Market, supplies inspection, testing and heat treatment services for the oil and gas industries.

There is no interim dividend (1.1p net) as the directors believe it would be imprudent to make any payment until the full year results are known. Last year's final was 1.55p.

First-half turnover dropped from £7.74m to £7.18m. The directors say the main problem areas for the group were the U.S. and Middle East, where sales generated from construction related work fell to an unprecedented low. In addition, the company's North Sea turnover was lower than expected.

While they say there is no doubt that the second half will be significantly better than the first—with the U.S. and Middle East operations once again trading profitably and the long awaited upturn now under way in many areas—this improvement will not be sufficient to equal the achievement in the last six months of 1983.

A full year profit well below last year's level of £1.38m pre-tax is therefore inevitable, the directors state.

Tax charge for the half year was £27,000, against £306,000, leaving a net deficit of £193,000, against a £319,000 profit before. Loss per 20p share was 2.7p (4.8p earnings).

Despite the difficult environment in which the group has operated this year, the company has continued to develop new technological products and services which, in the longer term should benefit the group overall.

Mountleigh has record year with £1.7m profits

SECOND-HALF pre-tax profits at Mountleigh Group improved from £542,000 to £865,000, and results for the full year to April 30 1984 show profits up from £811,000 to a record £1.7m.

Turnover of this West Yorkshire-based property investment and development company was little changed at £6.59m compared with £6.63m. The final dividend is effectively raised from 3.75p to 4.5p for a total up from and adjusted 4.58p to 5.5p net.

The pre-tax figure was after increased interest charges of £1.2m against £814,000. There was a capital loss of £255,000 realised during the year. After tax of £16,000 (£18,000), retained profits were more than doubled at £1.04m (£517,000). Stated earnings per 25p share on the increased capital were 26.67p, against 14.55p and assets per share rose to 314.6p (281.87p).

The directors point out that although continuing as a commercial developer, the company has widened its activities to include residential development in London and Scotland.

In the retail sector, it completed a food supermarket in north Yorkshire and acquired, for its portfolio of High Street shops, Grundy Properties.

The board is confident that the company will maintain its success

MINING NEWS

Cost-saving measures at Seltrust

By George Milling-Stanley

A WIDE-RANGING programme of cost-saving measures has been announced by Seltrust Holdings, the Australian mining group in which British Petroleum has a 75 per cent holding.

Seltrust has been plagued by the fact that its spread of mining and exploration interests in Australia has not been sufficiently profitable to make any significant inroads into the group's debt burden. This now amounts to A$112.6m (£75m) and which the company said last month it was expecting increasing difficulty in servicing.

The tone of the last quarterly statement was reasonably hopeful for the future, helped by the reduction of losses at the nickel-producing Agnew mine in Western Australia.

Seltrust has been working on a plan to expand Agnew, with a decision expected in the first half of next year, but has now decided to suspend all operations associated with increasing the milling capacity and expanding the mine.

These decisions have been taken in conjunction with MIM Holdings, which owns 40 per cent of Agnew, with Seltrust owning the remainder.

More than 100 employees of Seltrust's contractors have been released, and there will also be a cut of 60 in the mine's own workforce. Seltrust said that the need to establish cash-positive operation at Agnew was fundamental to its objectives of reducing expenditure significantly, and improving the performance of its operations.

Spending on existing exploration projects will be kept to a minimum, and future efforts will be concentrated on identifying resources which could benefit existing operations, or which could support projects requiring limited development costs, Seltrust said.

FINANCIAL TIMES STOCK INDICES

	Sept. 28	Sept. 27	Sept. 26	Sept. 25	Sept. 24	Sept. 21	1984 High	1984 Low	Since Compilatn High	Since Compilatn Low
Government Secs.	80.80	80.83	80.54	80.37	80.55	80.26	85.77	75.72	127.4	49.18
Fixed Interest	84.27	84.11	83.85	83.78	83.71	83.47	87.48	80.43	150.4	50.53
Industrial Ord	868.4	872.0	869.0	870.0	863.4	871.4	922.8	755.3	922.8	49.4
Gold Mines	561.0	556.7	567.5	567.0	564.6	542.3	711.7	485.7	734.7	43.5
FT-Act.All.Share	535.86	536.49	532.76	528.97	528.94	530.80	536.71	464.64	536.71	61.92
FT-SE100	1140.3	1144.1	1135.6	1125.9	1122.1	1128.0	1141.6	986.9	1141.6	985.9

Closing prices, September 28

NEW YORK STOCK EXCHANGE COMPOSITE CLOSING PRICES

12 Month High	Low	Stock	Div.	Yld.	P/E	Sls 100s	High	Low	Close Quote	Ch'ge Prev. Close
23½	13¾	AAR	.48	2.1	20	64	23	22⅝	22⅝	−⅜
18⅝	13¾	AMF	.50	3	1149	538	16⅜	15¾	16⅜	+⅛
41¼	24¾	AMR			4	4885	27½	27⅛	27⅜	−⅛
20⅜	18⅛	AMR	pf2.18	11.		2	19⅝	19⅝	19⅝	+⅛
41½	27½	AMR	pf2.13	7.1		388	29⅞	29⅝	29¾	+¼
23	19	ANR	pf2.12	11		1	19⅝	19⅝	19⅝	
67½	40⅝	ARA	2.10	3.2	13	913	65¾	65½	65⅝	+⅛
69¾	44¾	ASA	3a	5.4		237	55⅝	55⅛	55½	−⅜
30⅛	16½	AVX	.32	1.7	12	79	19¼	18⅝	19	
53⅜	38¾	AbtLab	1.20	2.9	13	5005	42	40⅞	41⅛	−⅜
35⅛	23¼	AccoWd	.66	2.0	19	9	32½	32⅜	32½	−⅛
27¼	12½	AcmeC	.40	2.7		57	14⅝	14⅝	14⅝	+¼
12⅛	8¾	AcmeE	.32b	3.2	16	25	10	9⅞	10	+⅛
24⅝	11	AdmDg	.04	2	10	134	18⅞	18	18¼	+¼
18¾	15	AdaEx	2.11e	13.		105	16⅞	16⅝	16⅝	+⅞
18⅞	11⅞	AdmMl	.28	1.9	10	94	15	14¾	15	+¼
22	13½	AdvSys	.81t	4.9	16	57	16¾	16⅜	16½	−⅛
41⅛	25⅝	AMD			20	3640	35½	34½	34¾	−⅝
15⅞	7⅞	Advest	.12	1.3		42	9¼	9⅛	9⅛	−⅛
19⅜	9⅜	Aerflex			10	33	10⅝	10⅝	10⅝	+¼
39	27¼	AetnLf	2.64	7.8	31	1129	34⅛	33¾	33⅞	−¼
58¾	54	AetL	pf5.78e	11		2	54¼	54¼	54¼	−½
34½	15¾	Ahmns	1.20	5.3	6	437	22¾	22¼	22½	
5½	2⅝	Aileen				13	2⅞	2⅞	2⅞	
49	36½	AirPrd	1.20	2.7	10	x509	44⅛	43⅞	43¾	−¼
30⅝	13	AirbFrt	.60	3.7	9	279	16⅜	16	16⅛	−⅛
3¾	1½	AlaMoa	.50e	15		78	3⅜	3⅜	3⅜	+⅛
31⅞	26¾	AlaP	pfA3.92	14		2	28	28	28	
7¾	6	AlaP	dpf.87	13		30	6⅝	6⅝	6⅝	

Continued on Page 31

AMERICAN STOCK EXCHANGE COMPOSITE CLOSING PRICES

Closing prices, September 28

Continued on Page 32

NEW YORK STOCK EXCHANGE COMPOSITE CLOSING PRICES

Continued from Page 30

12 Month High	Low	Stock	Div.	Yld.	P/E	Sls 100s	High	Low	Close Quote	Ch'ge Prev. Close
8⅞	3⅛	Wurltzr				95	11	4⅞	4⅞	4⅞	
25⅜	10¼	WyleLb	.32	2.2	9	160	14⅝	14¼	14½	+ ¼
21	16½	Wynns	.60	3.2	10	27	18⅞	18½	18⅞	− ⅛
		X−Y−Z								
52⅞	33⅞	Xerox	3	8.0	10	1226	37¾	37¼	37⅝	+ ⅛
37	19	XTRA		2.4	10	24	25⅞	25½	25⅝	− ⅛
34	24	ZaleCp	1.32	4.9	9	7	26⅞	26⅞	26⅞	− ¼
24⅞	15¼	Zapata	.84	4.5	13	595	18⅞	18¾	18⅞	
48	28½	Zayre	.40b	.9	13	352	44½	44	44½	− ½
38½	20	ZenithE			9	1165	24⅝	24¼	24¼	− ⅛
27⅞	18	Zero	s .36	1.6	17	32	23	22¾	23	
34	21⅛	Zurnin	1.32	5.6	12	40	24	23¾	23¾	− ½

Sales figures are unofficial. Yearly highs and lows reflect the previous 52 weeks plus the current week, but not the latest trading day. Where a split or stock dividend amounting to 25 per cent or more has been paid, the year's high-low range and dividend are shown for the new stock only. Unless otherwise noted, rates of dividends are annual disbursements based on the latest declaration.

a–dividend also extra(s). b–annual rate of dividend plus stock dividend. c–liquidating dividend. cld–called. d–new yearly low. e–dividend declared or paid in preceding 12 months. g–dividend in Canadian funds, subject to 15% non-residence tax. i–dividend declared after split-up or stock dividend. j–dividend paid this year, omitted, deferred, or no action taken at latest dividend meeting. k–dividend declared or paid this year, an accumulative issue with dividends in arrears. n–new issue in the past 52 weeks. The high-low range begins with the start of trading. nd–next day delivery. P/E–price-earnings ratio. r–dividend declared or paid in preceding 12 months, plus stock dividend. s–stock split. Dividends begins with date of split. sls–sales. t–dividend paid in stock in preceding 12 months, estimated cash value on ex-dividend or ex-distribution date. u–new yearly high. v–trading halted. vi–in bankruptcy or receivership or being reorganised under the Bankruptcy Act, or securities assumed by such companies. wd–when distributed. wi–when issued. ww–with warrants. x–ex-dividend or ex-rights. xdis–ex-distribution. xw–without warrants. y–ex-dividend and sales in full. yld–yield. z–sales in full.

WORLD STOCK MARKETS

OVER-THE-COUNTER

Nasdaq national market, closing prices, September 28

Stock	Sales (Hnds)	High	Low	Last	Chng
[illegible]					

Continued on Page 33

AMERICAN STOCK EXCHANGE CLOSING PRICES

Continued from Page 31

12 Month High	Low	Stock	Div.	Yld.	P/E	Sls 100s	High	Low	Close Quote	Ch'ge Prev. Close
[illegible]										

CANADA

TORONTO

Closing prices September 28

Sales	Stock	High	Low	Close	Chng
[illegible]					

Total sales 6,337,727 shares

MONTREAL

Closing prices September 28

Sales	Stock	High	Low	Close	Chng
[illegible]					

Total sales 1,237,467 shares

AUSTRIA

1984 High	Low	Sept. 28	Price %
222	208	Credit'stalt Pfd.	209
342	318	Goesser	328
410	381	Interunfall	381
216	203	Laenderbank	211
400	340	Perlmooser	361
162	139	Steyr-Daimler	149
329	206	Veitscher Mag	237

BELGIUM/LUXEMBOURG

1984 High	Low	Sept. 28	Price Frs.
1,875	1,320	ARBED	1,630
5,400	4,665	Bang Int A Lux	5,400
4,560	3,105	Bekaert B	4,545
2,760	2,010	Ciment CBR	2,675
328	175	Cockerill	285
6,650	4,575	Delhaize	5,680
2,915	2,290	EBES	2,805
8,160	5,850	Electrobel	8,100
2,400	1,800	Fabrique Nat	2,100
3,595	3,060	GB Inno BM	3,420
2,800	2,120	GBL (Brux)	2,280
3,675	2,970	Gevaert	3,675
6,000	4,860	Hoboken	6,000
2,000	1,605	Intercom	2,160
7,600	5,280	Kredietbank	7,260
10,350	8,950	Pan Hldgs	10,200
8,010	6,010	Petrofina	7,650
9,580	7,320	Royale Belge	9,400
3,500	2,885	Soc. Gen. Banq	3,250
1,960	1,395	Soc. Gen. Belge	1,840
7,630	5,790	Sofina	7,520
4,530	2,775	Solvay	4,420
4,400	3,125	Tractionel	4,080
5,490	3,975	UCB	5,330
5,300	3,700	Vielle Mont	5,250

DENMARK

1984 High	Low	Sept. 28	Price Knr.
430	325	Aarhus Olie	430
362	216	Andelsbanken	237
720	510	Baltic Skand	545
350	207	CopHandelsbank	247
850	590	D. Sukkerfab	600
335	205	Danske Bank	243
218	153	East Asiatic	165
1,250	850	Forenede Brygg.	720
153	65	Forenede Damp.	94
700	390	GNT Hldg	390
725	378	I.S.S.B.	378
760	443	Jyske Bank	452
3,150	1,810	Novo Ind.	1,830
372	203	Privatbanken	216
370	283	Provinsbanken	309
300	200	Smidth (F.)	225
1,375	865	Sophus Berend	895
568	426	Superfos	450

FRANCE

1984 High	Low	Sept. 28	Price Frs.
1,999	1,670	Emprunt 4½% 1973	1,735
10,020	9,001	Emprunt 7% 1973	9,055
3,969	3,320	CNE 3%	3,775
578	497	Air Liquide	533
504	375	BIC	498
836	560	Bouygues	641
2,885	2,401	BSN Gervais	2,560
1,558	1,012	CIT Alcatel	1,270
1,915	1,005	Carrefour	1,660
1,145	774	Club Mediter	1,123
720	522	CFAO	663
685	437	Cie Bancaire	589
262	207	Cofimeg	222
1,150	780	Darty	1,110
941	593	Dumez S.A.	740
698	488	Eaux (Cie Gen.)	535
278	179	Elf-Aquitaine	245.8
706	537	Gen.Occidentale	676
97.4	63.9	I.M.E.T.A.L.	91
393.6	300	Lafarge-Coppee	356.6
2,600	2,101	L'Oreal	2,538
2,340	1,778	Legrand	1,950
357	169	Maisons Phenix	169.5
2,050	1,300	Matra S.A.	1,770
1,084	740	Michelin B.	875
1,748	1,372	Midi (Cie)	1,740
1,927	1,313	Moet-Hennessy	1,826
140.5	90	Moulinex	97.9
68.9	43.7	Nord Est	58.4
845	662	Pernod Ricard	800
574	463	Perrier	515
315	184.5	Petroles Fra.	285
257.8	179.5	Peugeot-SA	213.5
73.9	37.5	Poclain	55.5
174.2	130.2	Printemps (Au.)	159
410	207	Radiotech	230
1,340	1,000	Redoute	1,200
1,590	726	Roussel-Uclaf	1,588
276	236	Sefimeg	246
1,640	1,180	Skis Rossignol	1,605
1,870	1,470	Telemech Elect.	1,850
379	239	Thomson (CSF)	379
358	205	Valeo	240

GERMANY

1984 High	Low	Sept. 28	Price Dm
115.7	80	AEG-Telef.	112.2
1,017	725	Allianz Vers.	997
179.2	146.5	BASF	156.6
186.5	152.3	Bayer	173.5
304	247	Bayern-Hypo	289
358	287	Bayern-Verein	323
316	219	BHF-Bank	264
453	290.5	BMW	388
247.5	194	Brown Boveri	208.9
190	136.5	Commerzbank	166.5
141.8	107.4	Conti Gummi	136.5
638	515	Daimler-Benz	590.6
412	338	Degussa	369.5
192.5	136.5	D'sche Babcock	166.5
382.6	302.1	Deutsche Bank	365.5xr
182.8	138.5	Dresdner Bank	166.5
166.7	126.5	GHH	156
623	450	Hochtief	475
195.5	165.5	Hoechst	173.4
132.8	87.5	Hoesch Werke	100
466	369	Holzmann (P.)	384.5
203	151	Horten	180.8
275	191.2	Kali und Salz	241
283	219.8	Karstadt	241.2
269.8	188	Kaufhof	227.5
284.5	212	KHD	256
70	47.9	Kloeckner	64.3
94	72	Krupp	85
418	336	Linde	385
170.6	135	Lufthansa	160.5
161	125	MAN	155
158	131.8	Mannesmann	155.2
561	449	Mercedes Hld.	252.5
249	200	Metallgesell.	225.5
1,370	910	Muench Rueck	1,200
288	216.5	Preussag	256.5
188.8	125.5	Rhein West Elect	258.6
291	277.5	Rosenthal	248
399	317	Schering	391
439.8	353.5	Siemens	435.5
94.5	69.3	Thyssen	78.4
198	160	Varta	172
185	159.5	Veba	168.2
127.8	108.5	V.E.W.	118
335	285	Verein-West	296
231.8	163	Volkswagen	182.9

AUSTRALIA

1984 High	Low	Sept. 28	Price Aust. $
5.93	4.27	ANZ Group	4.8
1.80	1.45	Acrow Aust	1.6
0.98	0.50	Alliance Oil Dev.	0.98
2.11	1.40	Ampol Pet.	1.6
1.95	1.65	Aust. Cons. Ind	1.9
3.10	2.35	Aust Guarantee	2.85
2.75	1.90	Aust. Nat. Inds.	2.57
2.46	1.80	Aust. Paper	2.25
6.40	3.90	Bell Group	4.5
1.62	1.20	Bond Corp Hldgs	1.43
4.00	3.02	Boral	3.4
2.72	1.42	Bougainville	1.78
3.35	2.50	Brambles Ind	3.35
3.62	2.1	Bridge Oil	2.65
12.16	9.24	B.H. Prop.	10.35
6.20	4.46	CRA	5.16
4.28	2.96	CSR	3.15
4.56	3.82	Carlton & Utd	4.30
5.56	4.08	Castlemaine Tys	4.7
4.15	3.30	Coles (G.J.)	4.15
3.22	2.05	Comalco "A"	2.1
1.30	0.37	Consolidated Pet	0.46
1.6	1.10	Costain Aust.	1.4
1.92	1.45	Dunlop Aust.	1.92
6.44	4.25	E.Z. Inds	6.1
4.56	3.50	Elders IXL	4.2
1.80	1.30	Energy Res	1.58
2.30	1.85	Gen. Prop. Trust	2.17
3.95	2.88	Hardie (James)	3.48
3.3	1.90	Hartogen Energy	2.25
3.95	2.95	Herald W'y Times	3.92
2.33	1.75	ICI Aust	2.1
0.38	0.16	Jimberlana F.P.	0.3
0.20	0.11	Kiaora Gold	0.12
6.4	4.45	Lend Lease	6.24
3.98	2.5	MIM	2.88
3.05	2.12	Mayne Nickless	3.05
1.3	0.37	Meekatharra	0.75
2.15	1.59	Myer Emporium	1.81
3.92	3.00	Nat. Com Bank	3.34
12.80	8.0	News	9.7
4.4	2.46	Nicholas Kiwi	4.4
3.32	2.05	North Bkn Hill	2.3
1.11	0.70	Oakbridge	0.83
0.78	0.38	Otter Expl.	0.4
1.48	0.95	Pancont'l	1.15
2.09	1.1	Pioneer Conc	1.65
1.21	0.94	Queensland Coal	1.16
3.0	2.4	Reckitt & Coln.	2.87
1.40	1.01	Repco	1.18
8.20	5.48	Santos	6.76
4.40	3.20	Smith (Howard)	3.9
0.45	0.26	Southland Min'g.	0.28
0.62	0.30	Spargos Expl	0.4
2.48	1.63	Thos. Natwide	1.7
5.5	4.98	Tooth	5.50
4.05	2.65	Vamgas	3.8
4.45	2.85	Western Mining	3.25
4.02	3.38	Westpac Bank	3.74
1.35	0.93	Woodside Petrol.	1.23
2.80	2.2	Woolworths	2.45
3.47	2.50	Wormald Intl.	2.8

ITALY

1984 High	Low	Sept. 28	Price Lire
19,750	14,995	Banca Com'le	16,450
183	108.4	Bastogi IRBS	136.5
2,600	1,418	Centrale	1,762
6,665	3,755	Credito Varesino	3,790
4,625	1,786	Fiat	1,810
50	27	Finsider	42.28
39,300	32,010	Generali (Assic.)	32,800
3,485	2,700	Invest	2,698
62,800	40,500	Italcementi	62,700
1,284	1,112	Montedison	1,181
6,010	3,865	Olivetti	5,810
3,316	2,464	Pirelli Co.	3,001
1,974	1,419	Pirelli Spa	1,780
1,887	1,336	Snia BPD	1,795
14,600	10,750	Toro Assic.	11,990
11,310	8,100	do. Pref.	8,700

NETHERLANDS

1984 High	Low	Sept. 28	Price Fls
216	153	ACF Holding	192
146	107	AEGON	126
236	168.5	Ahold	190.5
123.2	77	AKZO	97.8
445	202	ABN	329.5
183	141.9	AMEV	176.8
82	61.6	AMRO	65
222	151	Bredero Cert	159
62	10.3	Bos Kalis Westm	11.1
75	61	Buehrmann-Tet.	67.3
41.5	30.1	Calland Hldgs	32.8
70.6	43	Credit Lyon'is Bk	58.3
100	73	Elsevier NDU nv.	100
173.6	130.7	Gist-Brocades	164
157	116	Heineken	136.5
60.9	41.6	Hoogovens	59.2
32.7	23.6	Hunter Douglas	30.1
44.8	32.6	Int Mueller	39.6
232.6	149.8	KLM	192.8
48.4	34.1	Naarden	45
243.3	196	Nat Ned Cert	230.9
198	125	Ned Mid Bank	147.7
150.2	99.7	Nedlloyd	150
268.6	213	Oce Grinten	256.5
34.5	24.4	Ommeren (Van)	27
77	53	Pakhoed	62
54.9	41.7	Philips	53.7
4.9	0.9	Rijn-Schelde	0.9
70	66.3	Robeco	67.2
139	130.1	Rodamco	133.7
67.4	65.3	Rolinco	64.2
209.9	198	Rorento	206
180.3	136.2	Royal Dutch	180.2
295.5	232.5	Unilever	293
131.8	90	VMF Stork	128.5
185.3	137	VNU	185.3
145.5	72.5	West Utr Bank	100

NORWAY

1984 High	Low	Sept. 28	Price Kroner
190	141	Bergens Bank	143
340	215	Borregaard	274
190	142.5	Cristiania Bk	144
188.5	142.5	Den Norsk Credit	146
187.6	112.5	Elkem	118
347	252	Norsk Data	332.5
687.5	512.5	Norsk Hydro	629
272.5	185	Storebrand	186

SWEDEN

1984 High	Low	Sept. 28	Price Kronor
400	330	AGA	350
302	195	Alfa-Laval	200
480	280	ASEA (Free)	370
590	365	Astra	380
141	103	Atlas Copco	106
455	360	Boliden	365
551	260	Cardo (Free)	260
192	115	Cellulosa	124
288	230	Electrolux B	242
390	297	Ericsson	337
370	275	Esselte	317
575	320	Mo Och Domsjo	315
347	153	Pharmacia (Free)	212
600	310	Saab-Scania	520
425	310	Sandvik	598
445	278	Skandia	287
75	52	Skan Enskilda	53
222	155	SKF	160
197.5	163	St. Kopparbergs	180
237	169	Sven Handelsbn.	169
302	215	Swedish Match	224
254	228	Volvo B (Free)	237

SWITZERLAND

1984 High	Low	Sept. 28	price Frs.
928	660	Alusuisse	775
4,590	3,360	Bank Leu	3,640
1,530	1,240	Brown Boveri	1,335
2,496	2,085	Ciba-Geigy	2,495
2,190	1,655	do. (Part Certs)	1,950
2,385	2,040	Credit Suisse	2,250
2,820	2,290	Elektrowatt	2,515
748	590	Fischer (Geo)	595
4,300	3,400	Genevoise	3,450
112,250	90,000	Hoff-Roche PtCts	92,375
10,900	9,000	Hoff-Roche 1/10	9,350
6,825	5,725	Jacobs Suchard	5,950
1,925	1,700	Jelmoli	1,865
1,600	1,290	Landis & Gyr.	1,465
6,500	4,665	Nestle	5,295
1,545	1,030	Oer-Buehrle	1,210
263	245	Pirelli	263
7,600	6,450	Sandoz (Br)	7,000
1,225	940	Sandoz (Pt Cts)	1,115
610	460	Schindler (Pt Cts)	600
1,100	900	Swissair	975
365	309	Swiss Bank	344
8,350	7,050	Swiss Reinsce	7,450
1,590	1,320	Swiss Volksbk	1,450
3,650	3,150	Union Bank	3,440
3,270	2,770	Winterthur	2,980
18,900	16,550	Zurich Ins.	17,025

SPAIN

1984 High	Low	Sept. 28	Price P'ta %
360	262	Bco Bilbao	346
362	278	Bco Central	357
220	193	Bco Exterior	220
264	209	Bco Hispano	244
348	267	Bco Santander	323
428	314	Bco Vizcayo	432
181	120	Dragados	171
77.7	41.7	Hidrola	77.7
84	40.5	Iberduero	84
172.5	102	Petroleos	167.7
103.2	69.7	Telefonica	102.5

SINGAPORE

1984 High	Low	Sept. 28	price $
3.14	1.94	Boustead Hldgs.	2.06
5.20	2.92	Cold Storage	3.14
10.70	7.7	DBS	7.8
6.90	4.95	Fraser & Neave	5.7
6.00	4.62	Genting	5.4
2.91	2.00	Haw Par. Bros	2.22
3.65	2.56	Inchcape Bhd.	2.7
3.65	2.00	Keppel Shipyard	2.12
10.40	8.05	Malay Banking	8.9
7.10	6.4	Malay Brew.	7
2.27	1.02	Multi Purpose	1.06
11.80	9.15	OCBC	9.6
5.05	3.14	OUB	3.14
2.87	1.91	Sime Darby	2.07
1.98	1.15	Straits St'mship.	1.2
6.95	4.45	Straits Trdg.	5.26
5.90	4.30	UOB	4.74

HONG KONG

1984 High	Low	Sept. 29	Price H.K.$
29.7	17.8	Bank East Asia	20.8
10.6	6.15	Cheung Kong	8.4
14.5	9.95	China Light	13.5
2.97	1.65	Hang Lung Devel	2.5
47.0	25.9	Hang Seng Bank	35.75
7.4	5.05	HK Electric	6
4.7	2.75	HK Kowloon Wh.	3.95
4.3	2.05	HK Land	3.25
7.76	5.2	HK Shanghai Bk.	6.85
49	35.5	HK Telephone	43.5
15.5	8.4	Hutchison Wpa	12.5
14.3	5.5	Jardine Math	8.5
4.02	2.28	New World Dev	3.65
2.87	1.95	Orient O'seas	2.55
4.0	2.02	O'seas Trust Bnk	3
8.3	4.12	SHK Props.	7
21.0	12.9	Swire Pac A.	17.9
4.2	2.65	Wheel'k Mard A.	3.57
2.3	1.84	Wheel'kMaritme	1.9
2.6	1.46	World Int. H'ldgs	2.32

SOUTH AFRICA

1984 High	Low	Sept. 28	Price Rand
3.2	1.3	Abercom	1.30
9.75	7.2	AE & CI	7.45
36.5	23.5	Anglo Am. Coal	35.6
25.6	19.75	Anglo Am Corp	23.5
165.5	127	Anglo Am. Gold	157.5
23.5	14.9	Barclays Bank	15
14.95	10.2	Barlow Rand	10.85
88.5	55.8	Buffels	80.5
3.6	1.75	CNA Gallo	1.75
5.5	3.2	Currie Finance	3.25
10.9	6.3	De Beers	8.90
51	36.5	Driefontein	51
66.5	23	FS Geduld	54.5
33.3	22.5	Gold Fields S.A.	27.5
6.5	4.2	Highveld Steel	4.25
19.75	10.7	Nedbank	11.75
21.6	12.6	OK Bazaars	13.25
3.80	1.5	Protea Hldgs	1.6
28.25	20	Rembrandt	25.25
15.75	12.1	Rennies	12.4
15.8	12.65	Rust Plat	15.45
9.5	6.6	Sage Hldgs	7.10
7.9	5.6	SA Brews	6.85
26.75	17.8	Smith (C.G.)	18
13.00	6.75	Tongaat Huletts	7.00
5.90	4.85	Unisec	5.00

JAPAN

1984 High	Low	Sept 28	Price Yen
1,270	980	Ajinomoto	1,110
2,860	1,830	Alps Electric	2,460
1,410	985	Amada	1,300
642	405	Asahi Chem.	530
870	655	Asahi Glass	862
653	526	Bridgestone	571
1,610	1,070	Canon	1,500
1,580	1,080	Casio Comp.	1,510
1,140	940	Chugai Pharm.	997
709	445	Citizen	512
737	525	Daiei	564
1,160	875	Dai Nippon Ptg	1,070
553	435	Daiwa House	489
386	307	Ebara	313
1,380	965	Eisai	1,150
11,750	7,386	Fanuc	11,500
1,180	500	Fuji Bank	920
2,310	1,450	Fuji Film	1,700
1,110	753	Fujisawa	1,040
1,480	1,080	Fujitsu	1,430
2,080	1,490	Green Cross	1,710
453	320	Hasegawa	383
684	527	Heiwa Real Est.	552
1,000	780	Hitachi	860
1,930	1,080	Hitachi Credit	1,080
1,490	929	Honda	1,290
899	710	House Food	715
2,660	1,460	Hoya	2,600
340	280	Itoh (C)	280
2,300	1,740	Ito-Yokado	2,180
2,420	1,180	Iwatsu	1,620
404	325	JACCS	350
5,120	2,460	JAL	4,870
884	781	Jusco	800
330	265	Kojima	275
845	660	Kao Soap	740
761	580	Kashiyama	595
625	517	Kirin	529
1,150	880	Kokuyo	935
545	450	Komatsu	463
765	532	Konishiroku	590
343	295	Kubota	326
503	416	Kumagai	435
7,374	6,250	Kyoto Ceramic	7,100
535	380	Maeda Const	461
1,650	1,090	Makino Milling	1,480
1,320	887	Makita	1,130
415	265	Marubeni	300
700	590	Marudai	610
1,450	1,000	Marui	1,140
2,010	1,430	MEI	1,710
791	602	M'ta Elec. Works	665
1,150	500	M'bishi Bank	920
589	503	M'bishi Corp	510
449	361	M'bishi Elect	420
560	446	M'bishi Estate	463
273	216	MHI	225
390	323	Mitsui Co.	330
778	606	Mitsui Estate	660
406	339	Mitsukoshi	356
916	620	NGK Insulators	895
232	191	Nihon Cement	191
1,630	1,300	Nippon Denso	1,540
1,540	1,050	Nippon Elect	1,280
343	280	Nippon Express	296
1,130	600	Nippon Gakki	1,390
162	135	Nippon Kokan	135
1,220	835	Nippon Oil	871
663	490	Nippon Seiko	599
704	505	Nippon Shimpan	515
185	144	Nippon Steel	145
365	304	Nippon Suisan	320
16,500	6,990	NTV	13,000
262	213	Nippon Yusen	220
765	500	Nissan Motor	603
631	410	Nisshin Flour	475
232	157	Nisshin Steel	160
950	614	Nomura	735
1,160	830	Olympus	1,090
4,180	2,400	Orient Leasing	3,720
3,850	2,370	Pioneer	2,700
760	614	Renown	619
1,190	809	Ricoh	991
879	655	Sankyo	860
586	456	Sanyo Elect.	531
529	375	Sapporo	376
636	540	Sekisui Prefab	580
9,200	7,270	Seven Eleven	8,390
1,410	991	Sharp	1,200
666	486	Shimadzu	666
770	590	Shionogi	667
1,220	945	Shiseido	1,180
4,170	3,200	Sony	4,020
973	570	Stanley	973
1,250	500	Sumitomo Bank	950
1,000	745	S'tomo Elect	915
582	265	S'tomo Marine	420
196	147	S'tomo Metal	150
566	442	Taihei Dengyo	460
238	198	Taisei Corp	199
1,070	871	Taisho Pharm.	965
795	665	Takeda	766
7,080	4,500	TDK	6,410
456	336	Teijin	395
752	650	Teikoku Oil	666
708	513	Tokyo Marine	618
915	695	TBS	784
1,400	1,040	Tokyo Elect.Pwr.	1,120
188	157	Tokyo Gas	148
720	600	Toyko Sanyo	720
990	691	Tokyo Style	702
368	256	Tokyu Corp	270
873	654	Toppan Print	870
500	382	Toray	409
490	367	Toshiba Elect.	455
666	530	TOTO	623
860	495	Toyo Seikan	780
1,500	1,200	Toyota Motor	1,390
3,400	1,930	Victor	2,260
823	700	Wacoal	774
630	472	Yamaha	568
1,630	1,140	Yamanouchi	1,510
800	606	Yamazaki	638
385	246	Yasuda Fire	302
475	398	Yokogawa Bdge.	402

NOTES:—Prices on this page are as quoted on the individual exchanges and are last traded prices. $ Dealings suspended. xd Ex dividend. xc Ex scrip issue. xr Ex rights. xa Ex all.

WORLD STOCK MARKETS

OVER-THE-COUNTER

Continued from Page 32

Stock		Sales (Hnds)	High	Low	Last	Chng
[illegible]						

M–M, N–N, O–O, P–Q, R–R, S–S, T–T, U–U, W–W

Stock		Sales (Hnds)	High	Low	Last	Chng
[illegible]						

V–V

Stock		Sales (Hnds)	High	Low	Last	Chng
VSE	.12e	2	7¼	7¼	7¼	−⅛
ValidLg		108	13½	12⅞	13⅛	−⅛
ValFSL		33	8⅞	8⅝	8⅝	
ValNtl	1.20	169	27	26¾	26⅞	−⅛
ValLn	.40a	176	35½	35	35½	
VanDus	.40	31	15½	15½	15½	
Vercetl		49	12¼	12	12	−⅛
VectrG		163	½	7-16	½	
Ventrex		469	4¾	4½	4⅝	−⅛
Veta		252	½	7-16	½	

Stock		Sales (Hnds)	High	Low	Last	Chng
ViconF		5	3⅜	3⅜	3⅜	+¼
Vicorp	.12i	916	20½	19⅞	20	−½
VictraS		8	5⅛	5¼	5¼	−⅛
VideoCp		12	19¾	19⅜	19¾	+⅛
Viking		10	11¼	11¼	11¼	−¼
Virstek		16	16¼	16¼	16¼	−¼
VisTech		207	4	3¾	3⅞	+½
Vodavi		1	8¼	8¼	8¼	+¼
Volmf		139	15½	15⅛	15⅛	−⅛

W–W

Stock		Sales (Hnds)	High	Low	Last	Chng
[illegible]						

X–Y–Z

Stock		Sales (Hnds)	High	Low	Last	Chng
[illegible]						
Xicor		252	10⅜	10¼	10½	−⅛
Xidex		183	16½	15¾	15¾	−1
YlowFt	1	486	32	31¼	31½	−½
ZenLbS		646	17¼	17¼	17¼	
Zentec		71	4¼	3¾	3½	
Zitel		11	7	6½	6½	−¼
Zyad		35	12½	11¾	12¼	
Zondvn	.54	56	15	14⅝	14⅝	−¼
Zymos		712	2⅝	2¼	2⅜	−⅛
Zytrex		134	4¼	4	4	−¼

Indices

NEW YORK — DOW JONES

	Sept. 28	Sept. 27	Sept. 26	Sept. 25	Sept. 24	1984 High	1984 Low	Since Compiltn High	Since Compiltn Low
[illegible]									

STANDARD AND POORS; N.Y.S.E. ALL COMMON; Rises and Falls; TORONTO; MONTREAL; NEW YORK ACTIVE STOCKS

[illegible]					

	Sept. 28	Sept. 27	Sept. 26	Sept. 25	1984 High	1984 Low
AUSTRALIA						
All Ord. (1/1/80)	739.2	735.5	727.4	728.4	767.9 (9/1)	648.5 (18/6)
Metal & Mins. (1/1/80)	452.7	447.7	439.4	440.5	567.4 (3/1)	404.9 (24/7)
AUSTRIA						
Credit Aktien (2/1/62)	55.82	54.88	54.49	54.25	56.21 (2/1)	53.20 (15/6)
BELGIUM						
Belgian SE (31/12/65)	161.68	161.76	161.98	162.88	165.58 (14/9)	135.28 (4/1)
DENMARK						
Copenhagen SE (3/1/85)	169.45	170.65	168.15	167.65	225.21 (20/1)	167.65 (25/9)
FRANCE						
CAC General (31/12/82)	179.2	179.2	179.0	178.3	191.7 (3/5)	155.6 (3/1)
Ind Tendance (30/12/83)	116.7	116.8	116.8	116.6	126.7 (26/5)	99.4 (3/1)
GERMANY						
FAZ Aktien (31/12/58)	364.59	364.61	365.73	361.82	379.64 (2/2)	317.17 (25/7)
Commerzbank (1/12/53)	1059.0	1057.8	1063.1	1051.7	1096.5 (2/2)	917.7 (25/7)
HONG KONG						
Hang Seng Bank (31/7/64)	1002.5	1014.95	999.79	1010.25	1170.35 (19/3)	746.02 (13/7)
ITALY						
Banca Comm Ital. (1972)	214.8	212.92	215.26	214.54	229.57 (1/2)	192.05
JAPAN**						
Nikkei-Dow (16/5/49)	10649.2	10645.9	10620.1	10604.6	11,190.17 (4/5)	9703.35 (23/7)
Tokyo SE New (4/1/68)	824.66	825.84	822.31	819.48	876.62 (2/4)	730.45 (4/1)
NETHERLANDS						
ANP CBS General (1970)	177.1	177.5	177.1	174.1	178.6 (1/2)	146.6 (24/7)
ANP CBS Indust (1970)	137.1	137.3	137.1	135.5	147.2 (1/2)	118.7 (19/6)
NORWAY						
Oslo SE (4/1/83)	258.54	254.16	254.97	254.47	296.70 (9/5)	221.67 (4/1)
SINGAPORE						
Straits Times (1966)	902.68	901.00	895.81	893.39	1071.91 (8/2)	867.26 (12/7)
SOUTH AFRICA						
Gold (1958)	995.2	994.6	995.3	996.7	1075.6 (5/6)	738.1 (24/7)
Industrial (1958)	859.1	859.4	860.7	856.2	1103.5 (29/2)	553.5 (19/9)
SPAIN						
Madrid SE (30/12/83)	148.11	146.78	146.42	146.97	148.11 (28/9)	101.02 (5/1)
SWEDEN						
Jacobson & P. (1/1/58)	1455.75	1438.16	1421.64	1415.33	1564.5 (3/2)	1,288.00 (29/5)
SWITZERLAND						
SwissBank Cpn. (31/12/58)	375.3	374.7	372.9	373.7	380.5 (3/1)	354.5 (25/7)
WORLD						
Capital Intl. (1/1/70)	184.3	—	185.0	182.5	190.6 (3/5)	164.6 (24/7)

** Saturday September 22: Japan Nikkei-Dow 10,541.50. TSE 815.97

Base value of all indices are 100 except Australia All Ordinary and Metals—500. NYSE All Common—50; Standard and Poors—10; and Toronto Composite and Metals—1,000. Toronto indices based 1975 and Montreal Portfolio 4/1/83. † Excluding bonds. ‡ 400 industrials. § 400 industrials plus 40 Utilities, 40 Financials and 20 Transports. c Closed. u Unavailable.

CONSTRUCTION CONTRACTS

Haden Young wins over £23m services order

HADEN YOUNG has won UK orders worth over £23m. These include a contract worth £4.1m for mechanical and electrical services and building refurbishment at the Civil Aviation Authority's West Drayton air traffic control centre. A joint venture partnership between John Laing Construction and Haden Young is responsible for building Phase 1 of West Dorset District General Hospital at Dorchester. Haden Young will be carrying out mechanical, electrical and public health services to a value of £3.4m. At St George's Hospital in Tooting, Haden Young is to execute a £5.5m multi-services contract for a ward block to be built by John Laing Construction for the South West Thames Regional Health Authority. Further hospital orders are for air conditioning and mechanical services at London Bridge City Hospital, valued at £2m, and Buckland Hospital, Dover, £0.6m. A £4m order for the new "Daily Telegraph" printing works at Trafford Park, Manchester, will cover a complete mechanical and electrical services package. Other orders are for work at the dental clinic, RAF Upwood in Cambridgeshire (£1.1m), Fenwick Coppergate, York (£1m), DCI, Glasgow (£1.3m) and Mansfield Civic Centre (£1.3m).

£10m work for William Moss

WILLIAM MOSS CONSTRUCTION has won contracts worth more than £10m. In Stockport, the group has started building an Asda Superstore under a £5.7m contract for Associated Dairies. Scheduled for completion by August 1985, the development includes a multi-storey car park and a link bridge spanning Corporation Street and the River Goyt. For Fisons scientific equipment division, the group is building offices with parking facilities in Bishop Meadow Road, Loughborough, for about £1m. Work will be completed by next spring. The group is carrying out site preparation work at the Manchester Royal Infirmary for the North West Regional Health Authority, under a 20-week contract worth £260,000, and, for the TA&VR Association, new workshops at the TA Centre in Clifton are being built for £320,000.

In the south, in a contract worth nearly £300,000, a warehouse unit at Millmarsh Lane, Brimsdown, Enfield, is being built for Paladin Plastics. At John Hall Way, Cressex, High Wycombe, 63 homes with communal facilities are to be built, in a contract awarded by the Wycombe District Council worth more than £1.3m. Orders for smaller projects total about £2m.

Spread of jobs for Tilbury

TILBURY GROUP has been awarded contracts worth nearly £5m. One from the National Coal Board, value £1.1m, is for refurbishment of 59 homes on the South Ham Estate at Basingstoke. It involves roofing, heating, plumbing, fencing, drainage, electrical work and decoration. A reservoir and pumping station for Thames Water Authority at Northleach in Gloucestershire, is worth £650,000. Of two contracts from the Property Services Agency one is worth £875,000, construction of a diving centre at the naval base at Devonport; and the other, at Portland naval base, involves construction of a workshop, electrical substation, and offices and is worth £375,000. Four British Rail contracts total £460,000. These include design and construction of footbridges at Stansted, Great Chesterford and Whittlesford stations, and the demolition and reconstruction of a bridge at Needham Market, on the Liverpool Street to East Anglia line. Tilbury Roadstone has a £950,000 contract for black top surfacing of the western section of the A45 Ipswich by-pass. Work has started and should be completed within two years.

★

CONSTRUCTORS TERN, Penarth, is involved in four projects in Swansea worth over £2.7m. Largest is for new fire service headquarters adjacent to the existing fire station in Sway Road, Morriston. This £900,000 contract will be finished early in 1986.

Nuttall to build bypass at Bideford

EDMUND NUTTALL has won a £13.5m contract for construction of the A39 Bideford bypass in North Devon. Work on this two-and-a-half-year contract starts within the month. Main feature of the scheme will be the construction of the Torridge Bridge, a high-level structure over a tidal estuary about 640 metres long between abutments, and the 260-metre-long Kenwith Viaduct, which will carry the bypass over a deep valley. The contract includes about 8 km of single carriageway, with some climbing lanes, in flexible bituminous construction, a two-level interchange (at Lower Winsford) and seven junctions to connect the new bypass with existing roads.

Lelliott wins £11m orders

JOHN LELLIOTT has been awarded contracts totalling £11.25m for work at Park House, Richmond; Carlton House, Curzon Street, W1; The Victoria Casino, W2; Coombe Lane, Raynes Park; 89-91 Hartfield Road, SW19; 83-88 Farringdon Street, EC4; and Bridgewater House, SW1.

★

SIR ROBERT McALPINE AND SONS has been awarded a contract worth about £4m by Commercial Union Properties to build an office block in Cheltenham Street, Swindon. The air-conditioned, six-storey block will be of reinforced concrete frame construction with cobalt blue and off-white aluminium cladding. Work will include two passenger lifts, and a basement car park for 45 vehicles. On completion in November 1985 the building will provide about 5,000 sq metres of office accommodation.

★

The RAWLINGS GROUP has eight contracts worth £3.25m, the largest being a £940,000 new build sheltered housing scheme in Blackburn, for the North British Housing Association. Other new build contracts include two schemes in South Wales, one for the Borough of Newport, worth £730,000, for the construction of 32 flats at Rogerstone; and the other for 22 elderly persons' flats and communal lounge at Roath, Cardiff, value £435,000, for the Wales and West Housing Association. In the south-east two schemes have been awarded, one at Orpington, for the London Borough of Bromley, a design and construct scheme, value £180,000 for the erection of elderly persons' homes; the other for the London Borough of Bexley for the construction of housing at Erith, value £230,000. In North Wales, an award from the Welsh Development Agency for an industrial building at Kinmel Park, Bodelwyddan, value £220,000. Refurbishment contracts have been awarded in Blackburn for housing for Blackburn Borough Council, value £70,000, and at Chorley, for a library renovation for Lancashire County Council, value £475,000.

£2.5m extension to supermarket

A £2.5m project for extensions and alterations to a supermarket is included in contracts valued at almost £5m awarded to TARMAC CUBITTS—part of Tarmac Construction. Work on the supermarket at Hempstead Valley, Gillingham, Kent, for Savacentre, is scheduled for completion in a year. It involves building and fitting-out a two-storey extension, with car parking underneath, and alterations and refurbishment of the existing store. Another contract, worth £1.6m, is for demolition of existing premises and construction of a three-storey office building at London Bridge, for Whympeas Investments. Others include alterations and repairs to property in Clapham Common, for Laurent Holdings (£345,000); work on local authority homes at Moreton, Merseyside, for Wirral Metropolitan Borough Council (£229,000); and extensions to a warehouse at Saltash, Cornwall, for Bradbury Wilkinson (Saltash) (£230,000).

★

WALTER LAWRENCE & SON has been awarded a £2.7m contract, on behalf of North East Thames Regional Health Authority, for construction of a ward block at Broomfield District Hospital, Chelmsford. The two-storey ward block will accommodate 224 beds in eight 28-bed ward units arranged around two courtyards. Completion of the scheme is scheduled for September 1986.

★

LOVELL FARROW CONSTRUCTION is to build 76 houses at Chatteris Avenue, Harold Hill, Romford, which the London Borough of Havering will rent to tenants. The £1.9m design and build contract comprises 13 two-bedroomed houses and 63

£12m road rebuilding in Ghana

TAYSEC CONSTRUCTION, an associated company of Taylor Woodrow International, has been awarded a £12m contract for works in Ghana where the Highway Authority has placed an order for repairing a 47 km stretch of the main north-south road in the north of the country. Work starts early next year for completion in three years. Major part of the contract involves reconstruction of the approach embankments of bridges over the Black Volta River at Morno and the White Volta River at Yapei. Other works include general repairs and resurfacing with bitumen spray and stone chippings.

★

FARMER PLANT ENGINEERING has an order worth over £1m for 69 prefabricated steel-framed, clad buildings for Biwater Treatment, a member of the Biwater Group. The buildings are to house chemical treatment equipment and remote generators on a water distribution project for the Kwara State Water Corporation in Nigeria. The design incorporates plasticised steel cladding and roof sheeting, roller shutter doors, internal partitioning, fittings and electrical installation.

★

EMIRATES McALPINE CONTRACTORS, a subsidiary of Alfred McAlpine International, has been awarded a contract in the United Arab Emirates for Ar Rufaysah dam and Khor Fakkan flood drainage improvements. The work consists of construction of a mass concrete gravity dam 25 metres high by 100 metres long at crest level, 4 km of access road, and remedial works to downstream drainage channels. The contract value is about 25m UAE Dirhams (£5.2m) and the completion time 18 months. The client is the Municipality of Khor Fakkan.

Company Notices

American Petroleum Production N.V.

Annual General Meeting

Notice is hereby given that the Annual General Meeting of American Petroleum Production N.V. will be held at Pietermaai 15, Willemstad, Curaçao, Netherlands Antilles, on 30th October 1984 at 10.00 a.m. to consider and, if thought fit, to pass resolutions for the following purposes:—

1. to approve the balance sheet of the Company and the consolidated balance sheet as of 30th June 1984, the related consolidated statements of income and retained earnings and changes in financial position of the Company and its subsidiaries for the year ended 30th June 1984, together with the respective notes thereto and the Auditors' Report thereon;
2. to ratify the payment on 15th February 1984 of the first interim dividend of $15 per share;
3. to ratify the payment on 25th May 1984 of the second interim dividend of $15 per share;
4. to ratify the payment on 20th July 1984 of a distribution of $65 per share by way of capital repayment out of additional paid in capital;
5. to ratify the payment on 20th July 1984 of the third interim dividend of $30 per share;
6. to approve the distribution on 28th November 1984 of $35 per share by way of capital repayment out of additional paid in capital;
7. to approve the payment on 28th November 1984 of the final dividend of $18 per share; and
8. to re-appoint the Auditors and authorise the Board to determine their remuneration.

American Petroleum Production N.V.
26th September, 1984

Notes —
1. Shareholders are entitled to appoint a proxy to attend and vote in their stead at the Annual General Meeting and at any adjournment thereof. A proxy need not be a shareholder but must not be a Director or a person employed by the Company.
2. The required quorum for the Annual General Meeting is shareholders present in person or by proxy representing not less than five per cent of the outstanding shares of the Company.
3. If you are a registered shareholder and are unable to be present at the Meeting, please complete and sign the proxy form and lodge it with or send it to Banque Générale du Luxembourg S.A., Service des Titres, 14 Rue Aldringen, Luxembourg, in accordance with the instructions printed thereon.
4. If you are a bearer shareholder and are unable to be present at the Meeting, please deposit your certificates for bearer shares with, and complete a proxy form in accordance with the instructions printed thereon available from, any Paying Agent. Share certificates so deposited will be held in a blocked account until whichever is the later to occur of the conclusion of the Annual General Meeting (or any adjournment thereof) and the taking of any poll arising therefrom, whereupon the certificates will be released on surrender of the deposit receipt issued by the Paying Agent with whom they were deposited.
5. If you intend to attend the Meeting in person, you are asked to notify the Company by completing and signing the form of notice on the proxy form.

Notice of Redemption of

ASIA NAVIGATIONAL INTERNATIONAL LIMITED

HK$100,000,000 8% Unsecured Guaranteed Bonds 1984

Notice is hereby given to Bondholders that the above-mentioned HK$100,000,000 8 per cent Unsecured Guaranteed Bonds 1984 become due to be redeemed on 1st November, 1984 and payment of the principal amount thereof and annual interest will be made in accordance with the terms of the said Bonds against surrender of *the relevant Bonds and/or Coupons on or after 1st November, 1984* at any of the following addresses of the Paying Agents:

Principal Paying Agent
The Chase Manhattan Bank, N.A., Woolgate House, Coleman Street, London EC2P 2HD
Banque de Commerce S.A., 51/52 Avenue des Arts, B1040 Brussels
The Chase Manhattan Bank, N.A., Shell Tower, 50 Raffles Place, Singapore 0104
Chase Manhattan Bank Luxembourg S.A., Coin Boulevard Royale et Grande Rue, CP 240, Luxembourg

On behalf of Asia Navigation International Limited
By Order of the Board
EASTERN ASIA NAVIGATION COMPANY LIMITED
World-Wide Secretaries Limited
Secretaries

Hong Kong, 28th September, 1984

AZIENDA AUTONOMA DELLE

FERROVIE DELLO STATO

U.S. $225,000,000
Floating Rate Notes 1988
Convertible until March 1988 into
11¼ per cent.
Bonds 1993

For the six month period
28th September, 1984 to 28th March, 1985

In accordance with the provisions of the Notes, notice is hereby given that the rate of interest has been fixed at 12 per cent per annum, and that the interest payable on the relevant interest payment date, 28th March, 1985, against Coupon No.8 will be U.S. $301.67

S.G. Warburg & Co. Ltd.
Agent Bank

DOME PETROLEUM
$ US 50.000.000
FRN 1982/1989

For six months, september 21,84 to march 20,84 the notes will carry an interest rate of 12 1/8% P.A.

The interest due on march 21,84 against coupon nr 6 will be $ US 609,62 and has been computed on the actual number of days elapsed (181) divided by 360.

THE PRINCIPAL PAYING AGENT
SOCIETE GENERALE ALSACIENNE DE BANQUE
LUXEMBOURG BRANCH

TORAY INDUSTRIES, INC.
(formerly Toyo Rayon Kabushiki Kaisha)

United Kingdom shareholders are advised that copies of the Annual Report for the year ended 31st March, 1984 are now available from:
S. G. WARBURG & CO. LTD., Bond Department, 33, King William Street, London EC4R 9AS.
28th September, 1984.

THE PHILIPPINE INVESTMENT COMPANY
société anonyme in liquidation

Registered Office: LUXEMBOURG, 14, rue Aldringen
Commercial Register: B No. 8927

FIRST LIQUIDATION DISTRIBUTION

The shareholders are hereby informed that a first distribution in the amount of US$0.50 per share will be made on or after 1st October 1984 against presentation of coupon No. 8 of bearer shares.

Registered shareholders will receive a cheque from the company.

Coupons No. 8 may be presented for payment to:
BANQUE GENERALE DU LUXEMBOURG, S.A.
14, rue Aldringen
LUXEMBOURG

The Liquidator

NACIONAL FINANCIERA, S.A.

US$125,000,000
FLOATING RATE NOTES DUE 1988
(Extendible at the Noteholders' option to 1991)

NOTICE IS HEREBY GIVEN that the rate of interest for the period from 28th September, 1984 to 28th March, 1985 has been fixed at 12 per cent per annum.

On the 28th March, 1985 interest of US$60.33 per US$1,000 nominal amount of the Notes and US$603.33 per US$10,000 nominal amount of the Notes will be due against interest coupon No. 8.

SWISS BANK CORPORATION
Agent Bank

Art Galleries

Public Notices

THE SCOTTISH AGRICULTURAL SECURITIES CORPORATION plc

3½% DEBENTURE STOCK, 1963-93
13¾% DEBENTURE STOCK, 1997-99

NOTICE IS HEREBY GIVEN that the REGISTERS of the CORPORATION'S above mentioned Debenture Stocks will be CLOSED for TRANSFER and REGISTRATION from 18th to 31st October 1984, both days inclusive.

By Order of the Board.
H. J. McTURK, Secretary.

48 Palmerston Place,
Edinburgh EH12 5BR.
1st October 1984.

FT UNIT TRUST INFORMATION SERVICE

AUTHORISED UNIT TRUSTS

Bridge Fund Managers (a)(c)
Regis House, King William St, EC4. 01-623 4951

Amer Gen. Inc.†	57.2	64.1	.....	0.40
Do. Acc†	57.4	64.4	.....	0.40
Income*	88.7	101.5	.....	4.75
Capital Inc.‡	96.6	103.9	.....	1.31
Do Acc.‡	122.4	131.7	.....	1.31
Exempt§	205.0	221.8	.....	3.01
Intl. Recovery Inc.‡	36.6	39.4	.....	1.15
Do. Acc.‡	47.8	51.5	.....	1.15

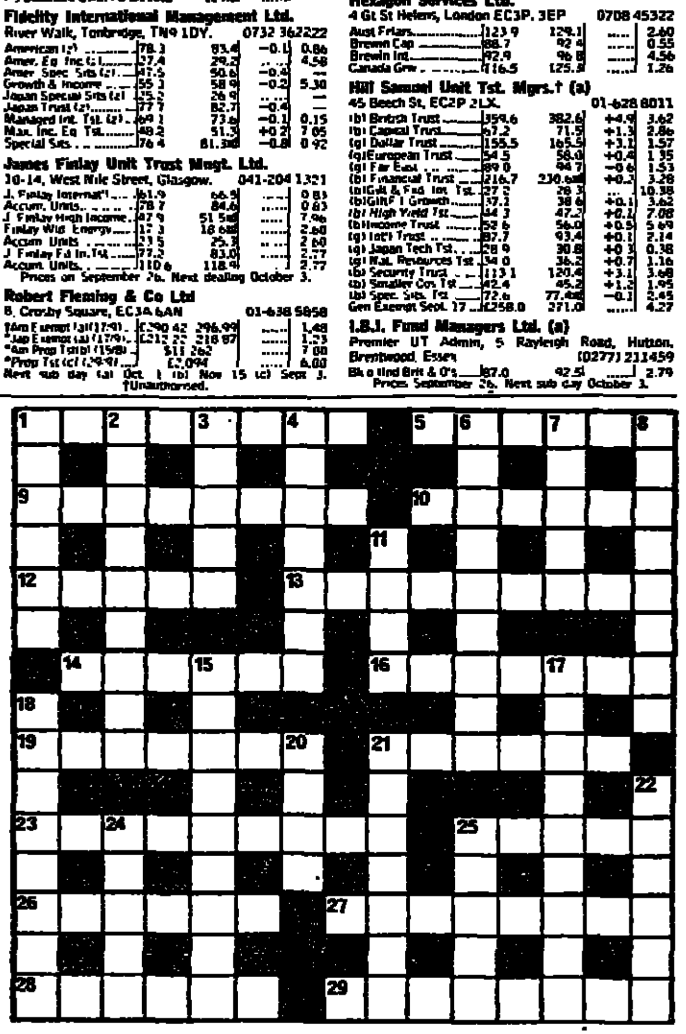
Dealing *Tues. ‡Wed. †Thur. Prices September 25/26/27

Britannia Gp. of Unit Trusts Ltd. (a)(c)(g)
Salisbury House, 31, Finsbury Circus, London EC2
01-588 2777 Dealing: 01-638 0478/0479
Britannia Viewpoint 01-341 5656

UK Specialist Funds				
Growth Gilt Trust	49.6	50.4	...	1.39
Recovery	63.4	67.6	+0.4	3.28
Smaller Cos	96.5	102.9	+0.9	1.75
Spec. Mkt. Sits	71.2	75.9	...	2.66
UK Blue Chip	61.2	65.3	+0.4	4.00
High Income Funds				
Extra Inc.	46.5	49.6	.....	8.78
Gilt	26.1	27.5	+0.1	9.72
Inc & Growth	131.4	140.3	+0.3	5.41
Nat. High Inc.	127.4	135.9	−0.3	6.67
Pref. Shares	17.5	18.7	...	11.05
Sector Specialist Funds				
Commodity Shares	138.6	147.8	−0.1	2.06
Financial Secs.	31.5	33.6	+0.2	2.86
Gold & General	24.4	26.3	+0.1	4.36
Int. Leisure Mt.	10.7	11.4	−0.1	—
Prop Shares	35.4	37.8	+0.1	1.61
Univ. Energy	21.5	78.4	−0.1	0.39
World Tech	47.1	50.2	−0.7	0.22
Overseas Funds				
American Growth	75.6	80.6	.....	2.64
Am. Smaller Cos.	22.4	31.9	.....	0.16
Am. Spec. Sits	68.4	73.0	−0.1	1.03
Australian Growth	75.7	80.7	+0.1	1.77
Far East	38.8	41.4	−0.2	0.74
Hong Kg. Perfmnce.	19.4	20.7	−0.3	3.09
Intl. Growth (2)	107.0	114.1	−0.2	2.55
Japan Perf. Trust	39.4	42.0	−0.2	—
Japan Smlr Co's Tst	12.7	13.5	.....	—

INSURANCES

F.T. CROSSWORD PUZZLE No. 5,531



ACROSS

1 Leaves in this (3-5)
5 Left in the sand to become white (6)
9 Calamity, finding a way in, rides round (8)
10 Corresponded with a light-hearted actor named Oliver (6)
12 Number one can return between 2nd and 4th of July (5)
13 Tack clumsily into the beach for something to eat (9)
14 Kind man takes in a girl (6)
16 A leading guitarist changed it to a musical instruction (7)
19 Bury, for example, has entered the whole unit (7)
21 The band takes in some food for the poor fellow (6)
23 Bill returns with it (a free cocktail you can consume here) (9)
25 Sponge the front door when in prison (5)
26 Ought to be in the money after work? That's choice! (6)
27 Everybody, that is, can break into the union (8)
28 Dying to stop in Gateshead (6)
29 Required in the legal document Mandy hasn't finished (8)

DOWN

1 Monotony of diet prepared with some hesitation (6)
2 Because a very good person is covering the French attacker (9)
3 Ridiculous person always on test (5)
4 May be Welsh theatre employee (7)
6 Not the sort of strike that happens in the same place again? (9)
7 Around November 1st the region was the scene of conflict (5)
8 Harriet's first border, the swine, is a prickly chap to handle! (8)
11 A deep sleep in a plastic mac is nothing! (4)
15 On August 3rd admit it's a strange thing first worn in bed (9)
17 Finished in a strip quite uninhibited! (9)
18 Make it known it's a record sole that's been cooked (8)
20 Seldom encountered the soldiers again (4)
21 A touching thing to read (7)
22 Guard gave food up on purpose (6)
24 Foul-smelling fathead tied in knots (5)
25 In the front of a little church in porcelain (5)

The solution to last Saturday's prize puzzle will be published with names of winners next Saturday.

هكذا من الأصل

INSURANCE, OVERSEAS & MONEY FUNDS

Save & Prosper Group
28, Western Rd, Romford RM1 3LB. 0708-66966

Global Equity Fund (z)	85.8	90.8	−0.1	—
Bal. Inv. Fd.	273.8	289.8	+0.1	—
Property Fd	280.9	297.3	—	—
Gilt Fd.	228.0	241.3	+0.6	—
Deposit Fd.‡	191.8	203.0	—	—
Man. Pens. Fd.	56.5	59.8	+0.1	—
Equity Pens. Fd	57.2	60.6	—	—
Prop. Pens. Fd.	53.0	56.1	—	—
A. G. Bond Fund (z)	70.1	74.2	−0.2	—
Dep Pen Fd‡	50.5	53.5	—	—
Gilt Pens Fd	50.8	53.8	+0.3	—
Global Eq Pens Fd	65.7	69.6	—	—

‡Weekly dealings.

Schroder Life Assurance Ltd.
Enterprise House, Portsmouth. 0705 827733

Equity	526.8	554.6	+1.6	—
Fixed Interest	252.6	266.0	+0.3	—
Managed	285.3	300.4	+0.6	—
Deposit	181.2	190.8	—	—
Overseas	183.4	193.1	+0.6	—
Property	278.8	293.6	—	—
American	183.0	192.7	−2.1	—
Australian	126.1	132.8	+0.2	—
European	173.2	182.4	−0.4	—
Gilt & Fxd Int.	139.3	146.8	+1.3	—
Income Accum.	226.6	238.6	+0.7	—
Income Distrib.	179.7	189.3	+0.5	—
International	182.1	191.8	+0.8	—
Japan Smllr Co's	106.6	112.3	−0.8	—
Singapore & Malay	141.1	148.6	−1.4	—
Smaller Co's	231.1	243.3	−0.9	—
Tokyo	194.6	205.0	−1.3	—
U.K. Equity	207.4	218.4	+1.7	—
CCM Vanguard Mngd.	224.3	236.1	−1.2	—
Equity Pension	305.2	321.3	+1.1	—

Target Life Assurance Co. Ltd.
Target House, Gatehouse Road, Aylesbury, Bucks.
Aylesbury (0296) 5941

Managed	273.6	288.3	−0.4	—
Property	236.7	249.2	—	—
Fixed Int.	154.9	163.1	−0.1	—
UK Equity	243.0	255.8	−0.1	—
Int. Equity	218.1	229.6	−0.5	—
Deposit	137.4	144.7	—	—
American Eagle	103.3	108.8	—	—
Technology	88.4	93.1	+0.4	—
U.S. Special Bond	123.5	130.1	−0.1	—
Pacific	96.6	101.7	−0.1	—
Australian	108.3	114.1	−0.2	—
Japan	157.1	165.4	−0.7	—
Malaysia & S'pore	119.1	125.4	−0.1	—
Commodity	118.3	124.6	+0.1	—
Energy	83.9	88.4	+0.5	—
Gold	129.2	136.0	−0.9	—
Financial	121.5	127.9	+0.4	—
Income	139.1	146.5	−0.4	—
Special Situations	161.0	169.5	+0.1	—
Preference	96.9	102.1	—	—
Managed Currency	75.1	79.1	—	—
Sterling	—	—	—	8.5

Pension Funds

Managed Pension	214.8	252.5	—	—
Gilt Pens.	290.2	305.5	+0.1	—
Property Pens.	302.4	318.4	—	—
Equity Pens.	258.2	271.8	+1.2	—
American Pens.	83.7	88.2	−0.1	—
Technology Pens.	132.1	139.1	−0.6	—
Japan Pens.	132.7	139.7	—	—
Australian Pens.	96.5	101.6	—	—
Commodity Pens.	94.8	99.8	+0.1	—
Energy Pens	88.7	93.4	+0.9	—
Gold Pens.	91.0	95.8	−0.6	—
Index-L Plan	102.6	108.0	—	—
Guar. Pen.	201.3	211.9	+0.1	—

CAL Investments (IoM) Ltd
16 St Georges Street, Douglas

CAL C & C*	69.6
CAL Metals*	87.3
CAL Silver**	216.8
CAL Gold**	74.3
CAL Copper**	95.5
CAL Aluminium**	62.0

*Dealing: Mon.

CAL Investments (Bermuda) Ltd
PO Box 1022, Hamilton, Bermuda

CAL CTR Fund 57.75

Capital International Fund
43 Boulevard Royal, Luxembourg

Capital Int. Fund $32.12

Capital Preservation Fund
14 rue Aldringen, Luxembourg

Cap Pres Fund $10.78

Cater Allen Investment
29a Broad St, St Helier, Jersey

CA Dollar Inc Fd $10.32
CA Gilt Edg Fd £12.86

Charterhouse Japhet
1 Paternoster Row, EC4.

Emperor Fund $8.69
Euro Global Inv Fd $39.45

Charterhouse Japhet Currency
PO Box 189, St Helier, Jersey

OFFSHORE AND OVERSEAS

Money Market Trust Funds

Money Market Bank Accounts

FT LONDON SHARE INFORMATION SERVICE

BRITISH FUNDS

"Shorts" (Lives up to Five Years)

[illegible]

Five to Fifteen Years

[illegible]

Over Fifteen Years

[illegible]

Undated

[illegible]

Index-Linked

[illegible]

INT. BANK AND O'SEAS GOVT STERLING ISSUES

[illegible]

CORPORATION LOANS

[illegible]

COMMONWEALTH AND AFRICAN LOANS

[illegible]

LOANS

Building Societies

[illegible]

Public Board and Ind.

[illegible]

Financial

[illegible]

FOREIGN BONDS & RAILS

[illegible]

AMERICANS

Dividends Paid	Stock	Price £	Last xd	Div Gross	C'vr	Y'ld Gr's
F May Aug N	Abbott Labs	33⅞xd	10 7	$1 20	—	2 7
—	Ahmanson (H F.)	16⅛	—	$1 20	—	5 1
F My Ag N	Alcoa $1	27⅛	30 4	$1 20	—	3 4
Mr Jn Se Dc	Allied Corp $1	28⅝	21 8	$1.80	—	4.8
My Jly S D	Amax $1	15⅞	8 5	20c	—	1.0
F My Au Nv	Amdahl 5c	10⅛	11.4	20c	—	1.5
F.M.A.S.	Amer. Express $0.60	28⅛	3.1	$1.28	—	3.5
F.My.Au.N.	Amer Medical Int $1	19⅝	6.7	60c	—	2.4
May Au No Fb	Amer. Nat. Res. $1	29⅝	10.7	h$1.41	—	3.6
Ap Jy Oc Ja	American T. & T. $1	16⅛	27.3	$1.20	—	5.7
My Au N F	Ameritech $1	61	—	$6.00	—	7.6
Mar Jn S D	Amtach	19⅛	21.8	$1.44	—	5.7
—	AndTech	30½p	—	—	—	—
Fb My Au N	Bankamerica $1⅝	14⅛	13.8	$1.52	—	8.1
Ap Jly Oc Jan	Bankers N.Y. $10	40⅝	29.3	$2.45	—	4.6
My Au N Fb	Bell Atlantic $1	62⅛	27.3	$6.40	—	7.9
Fb My Au N	Bellsouth $1	26⅛xd	25.9	$2.60	—	7.7
Mar Jun S D	Beth Steel $8	15⅛	4 11	60c	—	2.9
—	Bowater Inc.	17½	—	Q72c	—	3.2
Ja Ap Jly O	Brown'g-Fer. 16⅔c	31⅛	13.6	96c	—	2.4
F My Au N	Brunswick Corpn.	26⅛xd	20.7	80c	—	2.3
—	Business Computer	787p	—	—	—	—
Jan Ap Jly O	CPC Intnl. 25c	31⅝xd	25.6	$2.20	—	5.4
Oc Ja Ap Jy	Campbell Soup 60c	52⅞	1.4	$2.30	—	3.3
F My Au N	Caterpillar Tractor	28⅛xd	17.7	$1.50	—	4.0
Fb.My.Ag.Nv.	Chase M'htn $12.5	35⅛xd	10.8	$3.65	—	7.9
Ap Jy Oc Ja	Chemical New York	25⅛	12.3	$2.36	—	7.2
Mar Jun S D	Chesebrough-Pond's $1	29⅝	29.8	$1.92	—	5.1

[illegible]

CANADIANS

[illegible]

BANKS, HP & LEASING

[illegible]

Hire Purchase, Leasing, etc.

[illegible]

BEERS, WINES & SPIRITS

[illegible]

BEERS, WINES—Cont.

[illegible]

BUILDING INDUSTRY, TIMBER AND ROADS

[illegible]

CHEMICALS, PLASTICS

[illegible]

DRAPERY AND STORES

[illegible]

DRAPERY & STORES—Cont.

[illegible]

ELECTRICALS

[illegible]

ENGINEERING

[illegible]

ENGINEERING—Continued

[illegible]

FOOD, GROCERIES, ETC

[illegible]

HOTELS AND CATERERS

[illegible]

HOTELS—Continued

[illegible]

INDUSTRIALS (Miscel.)

[illegible]

INDUSTRIALS—Continued

[illegible]

INSURANCES

[illegible]

LEISURE

[illegible]

LEISURE—Continued

[illegible]

MOTORS, AIRCRAFT TRADES

Motors and Cycles

[illegible]

Commercial Vehicles

[illegible]

Components

[illegible]

Garages and Distributors

[illegible]

NEWSPAPERS, PUBLISHERS

[illegible]

PAPER, PRINTING ADVERTISING

[illegible]

PROPERTY

[illegible]

PROPERTY—Continued

[illegible]

SHIPPING

[illegible]

SHOES AND LEATHER

[illegible]

SOUTH AFRICANS

[illegible]

TEXTILES

[illegible]

TOBACCOS

[illegible]

TRUSTS, FINANCE, LAND

Investment Trusts

[illegible]

INVESTMENT TRUSTS—Cont.

[illegible]

Finance, Land, etc

[illegible]

OIL AND GAS

[illegible]

OIL AND GAS—Continued

[illegible]

OVERSEAS TRADERS

[illegible]

PLANTATIONS

Rubbers, Palm Oil

[illegible]

Teas

[illegible]

MINES

Central Rand

[illegible]

Eastern Rand

[illegible]

Far West Rand

[illegible]

O.F.S.

[illegible]

Finance

[illegible]

Diamond and Platinum

[illegible]

MINES—Continued

Dividends Paid		Stock	Price	Last xd	Div Net	C'vr	Y'ld Gr's
Central African							
Jan	June	Falcon Z50c	180	14.5	Q100c	ϕ	32.4
Nov.	May	Wankie Col. Z$1	10	25.4	—	—	—
October		Zam.Cpr.SBD0.24	1½	9/80	—	—	—
Australians							
—		ACM 50c	35	—	—	—	—
—		Allstate Expl'n. NL	28	—	—	—	—
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Tins

[illegible]

Miscellaneous

[illegible]

NOTES

[illegible]

REGIONAL & IRISH STOCKS

[illegible]

OPTIONS — 3-month call rates

Industrials	p	Hawker Sidd	38	Vickers	14
Allied-Lyons	15	Hse of Fraser	26	Woolworth Hldg	50
BOC Grp	27	ICI	42		
BSR	26	"Imps"	12	**Property**	
Babcock	17	ICL	7½	Brit Land	11
Barclays Bank	45	Ladbroke	23	Cap Counties	16
Beecham	32	Legal & Gen	45	Land Secs	25
Blue Circle	40	Lex Service	40	MEPC	25
Boots	16	Lloyds Bank	50	Peachey	17
Bowaters	25	"Lots"	3	Samuel Props	12
Brit Aerospace	20	Lucas Inds	18	Sterling Guar.	4
BAT	15	"Mams"	14		
Brown (J.)	3	Marks & Spcr	20	**Oils**	
Burton Ord	22	Midland Bk	36	Brit. Oil & Min.	9
Cadburys	11	NEI	10	Brit Petroleum	35
Comm Union	16	Nat West Bk	60	Burmah Oil	17
Courtaulds	11	P & O Dfd	25	Charterhall	9
Debenhams	14	Plessey	20	Premier	6
Distillers	22	Racal Elect	18	Shell	55
Dunlop	5	RHM	8	Tricentrol	20
FNFC	5¼	Rank Org Ord	24	Ultramar	60
Gen Accident	42	Reed Intn.	40		
Gen Electric	16	Sears	8	**Mines**	
Glaxo	70	TI	22	Charter Cons	24
Grand Met	30	Tesco	16	Cons Gold	58
GUS 'A'	55	Thorn EMI	55	Lonrho	12
Guardian	50	Trust Houses	18	Rio T Zinc	60
GKN	20	Turner Newall	10		
Hanson Tst.	17	Unilever	75		

A selection of Options traded is given on the London Stock Exchange Report page.

"Recent Issues" and "Rights" Page 28

This service is available to every Company dealt in on Stock Exchanges throughout the United Kingdom for a fee of £700 per annum for each security.

CURRENCIES, MONEY and CAPITAL MARKETS

THIS NOTICE DOES NOT CONSTITUTE AN OFFER FOR SALE AND THE STOCKS LISTED BELOW ARE NOT AVAILABLE FOR PURCHASE DIRECT FROM THE BANK OF ENGLAND.

ISSUES OF GOVERNMENT STOCK

The Bank of England announces that Her Majesty's Treasury has created on 28th September 1984, and has issued to the Bank, additional amounts as indicated of each of the following Stocks:

£200 million 10½ per cent EXCHEQUER STOCK, 1988

£200 million 8¾ per cent TREASURY LOAN, 1997

£150 million 12½ per cent TREASURY STOCK, 2003-2005

£100 million 2 per cent INDEX-LINKED TREASURY STOCK, 1990

£100 million 2½ per cent INDEX-LINKED TREASURY STOCK, 2009

The price paid by the Bank on issue was in each case the middle market closing price of the relevant Stock on 28th September 1984 as certified by the Government Broker.

In addition, Her Majesty's Treasury has created on 28th September 1984, and has issued to the National Debt Commissioners for public funds under their management, an additional amount of £100 million of 10 per cent Treasury Stock, 1987.

In each case, the amount issued on 28th September 1984 represents a further tranche of the relevant Stock, ranking in all respects *pari passu* with that Stock and subject to the terms and conditions of its prospectus, save as to the particulars therein which related solely to the initial sale of the Stock. Application has been made to the Council of The Stock Exchange for each further tranche of stock to be admitted to the Official List.

Copies of the prospectuses for 10½ per cent Exchequer Stock, 1988, 8¾ per cent Treasury Loan, 1997, 12½ per cent Treasury Stock, 2003-2005, 2 per cent Index-Linked Treasury Stock, 1990 and 2½ per cent Index-Linked Treasury Stock, 2009, dated 24th September 1982, 7th July 1971, 17th November 1978, 29th December 1983 and 19th October 1982 respectively, may be obtained at the Bank of England, New Issues, Watling Street, London, EC4M 9AA. The Stocks are repayable, and interest is payable half-yearly, on the dates shown below (in the case of 2 per cent Index-Linked Treasury Stock, 1990 and 2½ per cent Index-Linked Treasury Stock, 2009, provision is made in the prospectuses for stockholders to be offered the right of early redemption under certain circumstances):

Stock	*Redemption date*	*Interest payment dates*
10½ per cent Exchequer Stock, 1988	10th May 1988	10th May 10th November
8¾ per cent Treasury Loan, 1997	1st September 1997,	1st March 1st September
12½ per cent Treasury Stock, 2003-2005	21st November 2005, or on or at any time after 21st November 2003 subject to not less than three months' notice	21st May 21st November
2 per cent Index-Linked Treasury Stock, 1990	25th January 1990	25th January 25th July
2½ per cent Index-Linked Treasury Stock, 2009	20th May 2009	20th May 20th November

10½ per cent Exchequer Stock, 1988, 8¾ per cent Treasury Loan, 1997 and 12½ per cent Treasury Stock, 2003-2005 are repayable at par.

Both the principal of and the interest on 2 per cent Index-Linked Treasury Stock, 1990 and 2½ per cent Index-Linked Treasury Stock, 2009 are indexed to the General Index of Retail Prices. The Index figure relevant to any month is that published seven months previously and relating to the month before the month of publication. The Index figure relevant to the month of issue of 2 per cent Index-Linked Treasury Stock, 1990 is that relating to May 1983 (333.9); the equivalent Index figure for 2½ per cent Index-Linked Treasury Stock, 2009 is that relating to February 1982 (310.7). These Index figures will be used for the purposes of calculating payments of principal and interest due in respect of the relevant further tranches of Stock.

The relevant Index figures for the half-yearly interest payments on 2 per cent Index-Linked Treasury Stock, 1990 and 2½ per cent Index-Linked Treasury Stock, 2009 are as follows:

Interest payable	*Relevant Index figure* — *Published in*	*Relating to*
January	June of the previous year	May
July	December of the previous year	November
May	October of the previous year	September
November	April of the same year	March

Each further tranche of stock issued on 28th September 1984 will rank for a full six months' interest on the next interest payment date applicable to the relevant Stock. Official dealings in the Stocks on The Stock Exchange are expected to commence on Monday, 1st October 1984.

BANK OF ENGLAND
LONDON
28th September 1984

FOREIGN EXCHANGES

Dollar walks the tightrope

BY JONAS CROSLAND

Trading in currency markets fizzled out towards the end of last week in sharp contrast to *the pyrotechnics experienced* the previous Friday. The dollar finished at its best level of the week but achieved this in a much more surreptitious manner.

The West German Bundesbank flexed its muscles on Monday and prompted other central banks to sell dollars in a rather less spectacular style. The net effect was a distinct reluctance to push the dollar beyond DM 3.10 against the D-Mark and for this the Bundesbank achieved its objective more by bluff than continued aggressive intervention.

There was no return to normality by any stretch of the imagination, however, since trading towards the end of the week was affected by month, quarter and half-year book-squaring. There were indications, however, that the dollar was asserting itself once again. This was seen by some as virtually inevitable since the fundamentals underpinning the dollar have not really changed. The desire for a higher dollar received fresh impetus when U.S. Federal funds crept back to above 11 per cent, having touched 9¾ per cent earlier *in the week.*

Friday's release of U.S. economic indicators produced a higher-than-expected figure and highlighted the continued healthy growth in the U.S. economy. On the other hand U.S. prime rates were *adjusted downwards to 12¾* per cent from 13 per cent, suggesting a reducation in funding costs but hardly presaging a rush to single figures.

In fact the prospects of a very bunched Federal refunding programme and the certainty of having to cover an increasing Federal budget deficit left the market with little cause to think that the recent downturn in U.S. interest rates is little more than a temporary aberration.

New York rates

	Sept. 28	Prev. close
£ Spot	$1.2350-1.2365	$1.2450-2460
1 month	0.04-0.07 dis	0.04-0.07 dis
3 months	0.24-0.27 dis	0.20-0.24 dis
12-months	1.35-1.45 dis	1.25-1.40 dis

Forward premiums and discounts apply to the U.S. dollar.

FORWARD RATES AGAINST STERLING

	Spot	1 month	3 month	6 month	12 month
Dollar	1.2350	1.2356	1.2375	1.2409	1.2493
D-Mark	3.7775	3.7611	3.7316	3.6924	3.6185
French Franc	11.5825	11.5870	11.6090	11.6482	11.7536
Swiss Franc	3.1100	3.0952	3.0688	3.0309	2.9514
Japanese Yen	303.5	302.3	300.2	297.2	291.5

BANK OF ENGLAND TREASURY BILL TENDER

	Sept. 28	Sept. 21		Sept. 28	Sept. 21
Bills on offer	£100m	£100m	Top Accepted rate of discount	9.9874%	10.1077%
Total of applications	£468.55m	£392.3m	Average rate of discount	9.9807%	10.0903%
Total allocated	£100m	£100m	Average yield	10.24%	10.35%
Minimum accepted bid	£97.51*	£97.48	Amount on offer at next tender	£100m	£100m
Allotment at minimum level	86%	39%			

* 91 days. £97.485 for 92 days.

POUND SPOT—FORWARD AGAINST POUND

Sept 28	Day's spread	Close	One month	% p.a.	Three months	% p.a.
U.S.	1.2320-1.2480	1.2340-1.2360	0.04-0.07c dis	−0.53	0.23-0.27dis	−0.81
Canada	1.6255-1.6437	1.6260-1.6280	0.18-0.26c dis	−1.62	0.63-0.74dis	−1.68
Nethlnd.	4.2494-4.2600	4.2500-4.2600	1½-1¼c pm	4.58	4¾-4½ pm	4.35
Belgium	76.01-76.69	76.10-76.20	3c pm-4 dis	−0.08	3 pm-4 dis	−0.03
Denmark	13.590-13.664	13.590-13.600	¼-1ore dis	−0.50	2⅛-3⅛ dis	−0.85
Ireland	1.2165-1.2230	1.2205-1.2225	0.09-0.25p dis	−1.67	0.55-0.72dis	−2.08
W. Ger.	3.77-3.78¾	3.77¼-3.78¼	1¾-1½pf pm	5.16	4¾-4½ pm	4.90
Portugal	n/a	196.20-199.00	190-540c dis	−22.17	630-1,475dis	−20.29
Spain	210.52-211.80	210.80-211.50	65-90c dis	−4.40	182-240 dis	−4.00
Italy	2,315½-2,350	2,319-2,320	8-11lire dis	−4.91	27-32 dis	−5.09
Norway	10.810-10.926	10.810-10.820	2⅛-2⅞ore dis	−2.77	7-7¾ dis	−2.73
France	11.56½-11.59	11.57¾-11.58¾	¼-1c dis	−0.65	2⅝-3⅛ dis	−0.99
Sweden	10.646-10.704	10.650-10.660	2⅞-3½ore dis	−3.59	7¼-7⅞ dis	−2.84
Japan	302¾-306½	303-304	1.20-1.12y pm	4.59	3.38-3.25 pm	4.37
Austria	26.48-26.59	26.53-26.59	8¾-7⅛gro pm	3.47	22¼-19¼ pm	3.11
Switz.	3.10¾-3.12	3.10½-3.11½	1⅝-1½c pm	5.79	4⅞-4 pm	5.39

Belgian rate is for convertible francs. Financial franc 76.95-77.15. Six-month forward dollar 0.56-0.61c dis. 12-month 1.35-1.50c dis.

DOLLAR SPOT—FORWARD AGAINST DOLLAR

Sept 28	Day's spread	Close	One month	% p.a.	Three months	% p.a.
UK†	1.2320-1.2480	1.2340-1.2360	0.04-0.07c dis	−0.53	0.23-0.27dis	−0.81
Ireland†	1.0080-1.0245	1.0080-1.0095	0.15-0.05c pm	1.17	0.38-0.28 pm	1.28
Canada	1.3162-1.3185	1.3180-1.3185	0.10-0.12c dis	−1.00	0.26-0.30dis	−0.85
Nethlnd.	3.4105-3.4505	3.4495-3.4505	1.47-1.44c pm	5.12	4.36-4.32 pm	5.03
Belgium	61.29-62.20	62.00-62.20	3-1c pm	0.39	13-9 pm	0.72
Denmark	10.94-11.07	11.04¾-11.04¾	1-½ore pm	0.82	2¾-1¾ pm	0.73
W. Ger.	3.0210-3.0700	3.0670-3.0680	1.43-1.38pf pm	5.57	4.22-4.17 pm	5.55
Portugal	159-161	159-160	150-425c dis	−21.58	400-1150dis	−19.34
Spain	169.45-170.70	170.50-170.70	45-55c dis	−3.54	120-165 dis	−3.24
Italy	1,882-1,902	1,901½-1,902½	7-7½lire dis	−4.62	20-21 dis	−4.35
Norway	8.74¾-8.80¼	8.79¾-8.80¼	1.40-1.90ore dis	−2.25	4.00-4.50dis	−1.94
France	9.27¾-9.42	9.41-9.42	0.05-0.15c dis	−0.13	0.30-0.70dis	−0.21
Sweden	8.56½-8.64	8.61¼-8.61¾	2.05-2.55ore dis	−3.22	4.25-4.75dis	−2.10
Japan	245.00-246.90	246.70-246.80	1.06-1.02y pm	5.08	3.14-3.09 pm	5.06
Austria	21.25-21.45	21.41-21.45	7¼-6¾gro pm	3.96	21½-19½ pm	3.86
Switz.	2.4930-2.5200	2.5185-2.5195	1.37-1.31c pm	6.44	3.89-3.83 pm	6.18

† UK and Ireland are quoted in U.S. currency. Forward premiums and discounts apply to the U.S. dollar and not to the individual currency. Belgian rate is for convertible francs. Financial franc 62.25-62.40.

CURRENCY MOVEMENTS

Sept. 28	Bank of England Index	Morgan Guaranty Changes%
Sterling	76.6	−13.8
U.S. dollar	141.9	+26.2
Canadian dollar	90.2	−3.4
Austrian schilling	111.5	+4.5
Belgian franc	88.2	−11.5
Danish Kroner	78.1	−5.7
Deutsche mark	121.1	+5.9
Swiss franc	140.8	+9.5
Guilder	111.3	+3.4
French franc	64.0	−15.4

CURRENCY RATES

Sept. 28	Bank rate %	Special Drawing Rights	European Currency Unit
Sterling	—	0.800485	0.592711
U.S. $	9	0.999005	0.738933
Canadian $	12.38	*	0.972369
Austria Sch.	4½	21.2289	15.7025
Belgian Fr.	11	61.5069	45.3114
Danish Kr.	7	10.9341	8.08762
D'mark	4½	3.02239	2.23453
Guilder	5	3.40661	2.51939
French Fr.	9½	9.27476	6.85877
Lira	16½	1881.38	1387.72
Yen	5	245.856	181.075

OTHER CURRENCIES

Sept. 28	£	$		£ Note Rates
Argentina Peso	112.60-112.80	91.07-91.15	Austria	26.40-26.70
Australia Dollar	1.4870-1.4890	1.2005-1.2015	Belgium	76.75-77.55
Brazil Cruzeiro	2,864.97-2,882.14	2,317-2,329	Denmark	13.60-13.74

WEEKLY CHANGE IN WORLD INTEREST RATES

	Sept. 28	change		Sept. 28	change
TOKYO			PARIS		
One month Bills	6.46875	Unch'd	One Mth. Interbank	11⅛	+1/16
Three month Bills	6.34375	Unch'd	Three month	11	⅛
BRUSSELS			MILAN		
One month	11	+¼	One month	16½	−¼
Three month	11	+¼	Three month	17 1/16	−⅛
AMSTERDAM			DUBLIN		
One month	5 13/16	−3/16	One month	12¾	+⅜
Three month	6 3/32	−3/32	Three month	13	−⅛

EURO-CURRENCY INTEREST RATES (Market closing rates)

Sept. 28	Sterling	U.S. Dollar	Canadian Dollar	Dutch Guilder	Swiss Franc	D-mark	French Franc	Italian Lira	Belgian Franc Conv.	Belgian Franc Fin.	Yen	Danish Krone
7 days' notice	10⅝-10¾	10 13/16-11 1/16	11¾-12¼	5¾-5⅞	2⅛-2⅜	5 7/16-5 9/16	11-11¼	14⅝-15⅝	10¾-11¼	10⅞-11⅛	6 3/16-6 5/16	10⅛-10⅝
Month	10 11/16-10 13/16	11 1/16-11 3/16	11 13/16-12	6-6⅛	4 1/16-4 3/16	5 7/16-5 9/16	11-11⅛	15¼-15¾	10½-11	10⅞-11⅛	6⅛-6¼	10¾-11¼
Three months	10 15/16-11 1/16	11⅜-11½	12-12 1/16	6 1/16-6 3/16	4 1/16-4 3/16	5¾-5⅞	11 1/16-11 3/16	15⅝-16⅛	10½-11	10⅞-11⅛	6¼-6⅜	11 1/16-11 5/16
Six months	10¾-10⅞	11 7/16-11 9/16	12-12 3/16	6⅜-6½	5⅛-5¼	5 13/16-5 15/16	11¾-11⅞	15⅞-16⅝	10½-11	10⅞-11⅛	6 5/16-6 7/16	11⅜-12⅞
One year	10 13/16-10 15/16	11 11/16-11 13/16	12 1/16-12¼	5⅛-5⅝	5 1/16-5 3/16	6-6⅛	12⅛-12⅝	15⅞-16⅜	10⅝-11⅛	10⅞-11⅛	6 7/16-6 9/16	11⅝-12⅛

MONEY MARKETS

A relaxed week for UK interest rates

Some would argue that the highlight of last week was the release of an orange smoke bomb near the Bank of England on Thursday's unsuccessful "Stop the City" campaign. UK interest rates certainly showed little evidence of the rather nervous conditions prevailing in currency markets.

A net fall of ¼ of a point on the week despite sterling's slightly weaker trend and the possibility of a total closure of UK coal mines gave some indication of the market's growing confidence. Part of this emerging trend was certainly attributable to a distinct relaxation in the U.S. While the long term implications for U.S. interest rates are at best unclear, UK rates, aided by generous daily injections by the Bank of England, have firmly pursued a softer trend.

There will be many a sigh of relief if the previous practise of following U.S. rates dot for dot is somehow broken or at *least diminished. Much will de*pend on how U.S. rates perform in the short term and projections along this line appear to be more difficult than usual. Disregarding the ever increasing speculative element, if that is possible, there is very little on an economic basis that shouts for lower U.S. interest rates. The Presidential elections in November must herald some psychological turning point, for the new administration will have a clear four year mandate to pursue fresh economic policies.

Unless these include some plan that is seen to be working on the eventual reduction in real terms of the U.S. budget deficit, there can only be a restricted scope for lower U.S. interest rates.

On the other hand the scope for lower UK interest rates on purely domestic grounds is both feasible and desirable. A desperate need to rekindle what threatens to be a faltering upturn in economic activity coupled with the attractions of encouraging investment in industry must give the authorities every excuse to indulge in a concerted effort to see rates well into single figures.

MONEY RATES

Sept. 28	Frankfurt	Paris	Zurich	Amst'dam	Tokyo	Milan	Brussels	Dublin
Overnight	5.55-5.65	11⅛	1¾-2¼	5¾-5⅞	6.53125	17-17⅛	8.90	12-12¼
One month	5.80-5.90	11 1/16-11 3/16	4⅜-4⅛	5 13/16-6 1/16	6.46875	16¾-17⅛	10 13/16-11 1/16	12⅝-12⅞
Two months	5.80-5.90	11-11⅛	—	—	—	—	—	12¾-13
Three months	6.00-6.10	10 15/16-11 1/16	5 1/16-5 3/16	6⅛-6 3/16	6.34375	17⅛-17½	10 13/16-11 1/16	12⅞-13⅛
Six months	6.00-6.10	10⅞-11	—	6 3/16-6 5/16	—	—	10⅞-11⅛	13¼-13⅜
Lombard	5.5	—	—	—	—	—	—	—
Intervention	—	11	—	5¾	—	—	—	—

LONDON MONEY RATES

Discount Houses Deposit and Bill Rates

Sept. 28 1984	Sterling Certificate of deposit	Interbank	Local Authority deposits	Company Deposits	Market Deposits	Treasury (Buy)	Treasury (Sell)	Eligible Bank (Buy)	Eligible Bank (Sell)	Fine Trade (Buy)
Overnight	—	9-10⅞	10⅝-10¾	8-11	8-10½	—	—	—	—	—
2 days notice	—	—	10⅝-10⅞	—	—	—	—	—	—	—
7 days or 7 days notice	—	10⅛-10¾	10¾-10⅞	10¾-11	10½	—	—	—	—	—

FT LONDON INTERBANK FIXING

LONDON INTERBANK FIXING
(11.00 a.m. September 28)

3 months U.S. dollars	
bid 11 3/8	offer 11 1/2

6 months U.S. dollars	
bid 11 9/16	offer 11 11/16

The fixing rates are the arithmetic means, rounded to the nearest one sixteenth, of the bid and offered rates for $10m quoted by the market to five reference banks at 11 am each working day.

CHITTAGONG UREA FERTILIZER LIMITED
DHAKA—BANGLADESH
NOTICE FOR PREQUALIFICATION OF BIDDERS

Chittagong Urea Fertilizer Limited (CUFL) will build an Ammonia-Urea Fertilizer Complex at Chittagong, Bangladesh having a capacity of 1,700 MT of prilled urea per day, and a capacity of 1,000 MT of Ammonia per day including all offsites, auxiliaries, utilities and supporting facilities.

CUFL, through relending from Government of the People's Republic of Bangladesh, will be the beneficiary of funds in various currencies from the Asian Development Bank (ADB), the Abu Dhabi Fund for Arab Economic Development (ADFAED), the Canadian International Development Agency (CIDA), the International Development Association (IDA), the Islamic Development Bank (IsDB), the Overseas Economic Cooperation Fund of Japan (OECF) and the Saudi Fund for Development (SFD).

The ADB special fund loan may be used to pay for procurement from developed member countries of the Asian Development Bank, which have contributed to such resources and all developing member countries of the Asian Development Bank for services of General Contractor, Technical advisors and Operational Advisors, site preparation, General Construction equipment, some offsite facilities such as sewage and administration building, catalysts and chemicals, working capital and freight. The OECF loan may be used to pay for procurement from all the member countries of the Organization for Economic Cooperation and Development (OECD) and all the developing countries, as defined in Item 1, Paragraph I(b), of the Memorandum of Understanding of Untying of Bilateral Development *Loans in Favour of Procurement in Developing Countries agreed among the eight members of the* Development Assistance Committee on June 7, 1974 for the services of General Contractor relating to Urea Unit and equipment and materials for Urea Unit and Urea Products handling facilities including spares and freight.

The IDA credit may be used to pay for procurement from member countries of the International Bank for Reconstruction and Development and Switzerland for site preparation (pilings, foundations, etc.) and construction equipment. The SFD loan may be used to pay for procurement from all countries of the world and suppliers not disqualified under the resolutions of the competent organ of the *Arab League or the regulations in force in the Kingdom of Saudi Arabia for Ammonia Unit*, ammonia storage and refrigeration facilities, maintenance equipment, building and structures, spares and freight, construction and erection of all facilities within the complex. The CIDA funds may be exclusively used to pay for procurement of steam generation facilities, and spares and other distinct plant components from Canada. The IsDB funds may be used for procurement from all countries of the World and suppliers not disqualified under the resolutions of the competent organ of the Arab League or the Organization of African Unity for Power generation and distribution facilities, air and inert gas generation facilities, cooling water system, spares and freight. The ADFAED loan may be used for procurement from all countries of the world and suppliers not disqualified under the resolu*tions of the competent organ of the Arab League or the regulations in force in the United Arab* Emirates for water treatment plant, water intake station and pipeline, construction equipment, spares and freight.

The above financing allocations may be revised subject to the approvals of the various financiers mentioned, if further definition of requirements and market conditions dictate to revise in the interest of overall project execution.

Payments by ADB, ADFAED, CIDA, IDA, IsDB, OECF and SFD will be made only at the request of *CUFL either by direct payment procedure or a letter of credit in accordance with the terms and con*ditions of the loan agreement. Procurement procedure will be in accordance with the guidelines of each finance for the equipment, materials and services to be procured under such finance.

An original and thirteen (13) copies of applicants' response to "Prequalification Questionnaire" should be sent to and received at CUFL's Office on or before November 15, 1984. Inquiry documents for some items are expected to be issued to prequalified bidders around end of 1984. All correspondence shall be in English.

CUFL is now in the process of selection of General Contractor who will act for and on behalf of CUFL to perform prequalification after CUFL's receipt of applications, project management, design engineering and contracting construction management and contracting training, commissioning and start-up of the complex.

CUFL assisted by the General Contractor shall reserve the right to verify all statements and not to qualify any applicant without assigning reasons thereof. The following factors will be considered in evaluating the subsequent quotations: price, delivery, quality, execution plan, operating and maintenance costs, guarantees, compliance with specifications, spare parts, terms of payment, training capability, applicants' experience and national resources utilization in Bangladesh. For prequalification and preparation of inquiries, selected General Contractor may give preference, at its sole discretion, to lumping up to a reasonable extent of the various Categories of Supplies and Works so as to avoid unnecessary complication in allocating the various funds of Financiers, as well as to keep an appropriate size for international competitive bidding. Supplies and Works include, but are not limited to the following categories:

Categories of Supplies and Works

Ammonia Plant

Cat. No.	
XX – 1	Heaters, Towers, Vessels and Heat Exchangers including internal, packing and trays, atmospheric tanks with mixers, separators, filters with element and drums.
XX – 2	Condensate Polisher Unit including chemical injection and deaerator.
XX – 3	Pumps including drivers (low tension motor, steam turbine).
XX – 4	Piping Materials including pipes, valves, flanges, bolts and nuts, gaskets, fittings, silencers, hangers, filters, etc.